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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 0604366N / Standard Missile Improvements							
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	2,461.493	114.802	190.881	232.391	-	232.391	241.362	174.235	56.613	27.327	Continuing	Continuing
0439: Standard Missile Improvement	1,170.827	24.270	110.058	82.533	-	82.533	68.054	46.561	15.868	10.601	Continuing	Continuing
2063: SM-6 Blk IB	0.000	0.000	0.000	116.700	-	116.700	138.700	95.500	24.300	3.700	Continuing	Continuing
3092: Standard Missile 6 Program	1,290.666	90.532	55.823	33.158	-	33.158	34.608	32.174	16.445	13.026	Continuing	Continuing
9999: Congressional Adds	0.000	0.000	25.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	25.000

A. Mission Description and Budget Item Justification

STANDARD Missile (SM) is Navy's premier Anti-Air Warfare (AAW) missile, providing both area defense for the Fleet and self-defense for individual AEGIS CGs and DDGs, as required by the Joint Theater Air Missile Defense (TAMD), Mission Need Statement (MNS), Defense Planning Guidance (DPG), Quadrennial Defense Review (QDR), and Ship Class AAW Self Defense Capstone Requirements Document. SM-6 provides an air defense force multiplier to the U.S. Navy to greatly expand the AWS battlespace. Combining a modified AMRAAM active seeker onto the proven STANDARD Missile airframe, SM-6 provides an extended range (ER) anti-air warfare capability both over sea and overland. This low-risk approach relying on non-developmental items supported an FY 2011 Initial Operating Capability. With integrated fire control support,

SM-6 BLK I ER provides the Navy with an increased battlespace against Anti-Air Warfare (AAW) threats over-the-horizon.

B. Program Change Summary (\$ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Previous President's Budget	158.578	165.881	93.175	-	93.175
Current President's Budget	114.802	190.881	232.391	-	232.391
Total Adjustments	-43.776	25.000	139.216	-	139.216
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	25.000			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-2.000	0.000			
• SBIR/STTR Transfer	-3.576	0.000			
• Program Adjustments	0.000	0.000	141.331	-	141.331
• Rate/Misc Adjustments	0.000	0.000	-2.115	-	-2.115
• Congressional Directed Reductions	-38.200	-	-	-	-
Adjustments					

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<u>Congressional Add Details (\$ in Millions, and Includes General Reductions)</u>		FY 2018	FY 2019
Project: 9999: <i>Congressional Adds</i> Congressional Add: <i>SM-6 Electronics Unit</i>		0.000	25.000
Congressional Add Subtotals for Project: 9999		0.000	25.000
Congressional Add Totals for all Projects		0.000	25.000
<u>Change Summary Explanation</u> Proj 0439: The FY 2020 funding request was reduced by (\$3.0M) to account for the availability of prior year execution balances. Project 2063: FY 2020 reflects an increase for SM-6 BLK IB which provides funding for rocket motor prototyping and development and AUR integration and testing (\$116.7M). Project 3092: FY 2020 reflects an increase for the SM-6 Electronic Unit Obsolescence-Upgrade which provides funding to support development, design, and testing of new EU hardware for SM-6 BLK 1A. The current EU contains obsolete components that are no longer procurable (\$34.2M). The FY 2020 funding request was reduced by (\$6.569M) to account for the availability of prior year execution balances.			

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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 0604366N / <i>Standard Missile Improvements</i>				Project (Number/Name) 0439 / <i>Standard Missile Improvement</i>			
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
0439: <i>Standard Missile Improvement</i>	1,170.827	24.270	110.058	82.533	-	82.533	68.054	46.561	15.868	10.601	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Missile Integration with Air and Missile Defense S-Band Radar (AMDR-S) for DDG 51 Flight III ships, and with other platforms/Combat System baselines, will include requirements review/updates and analysis, verification; technical documentation, design review and working group SME support, missile/radar integration, missile test hardware procurement, risk assessment, safety, test and evaluation planning, analysis, and data collection. Deliverables include interface control documents (ICDs) changes, missile specifications changes, and engineering documents updates to support AEGIS Configuration Baseline (ACB) 20 IPR Process (FY 18-21) Engineering Development Model (EDM) testing (FY 2016-2020); Combat Systems Engineering Development Site (CSEDS) , Moorestown, New Jersey Combat System/ missile integration testing at PMRF/ARDEL Kauai, HI (FY 2018-2020); Waterfront Integration Testing (WIT) FY 2022 and ACB 20 for DDG 51 FLT III Electromagnetic Environmental Effects (E3) and Hazard of Electromagnetic Radiation to Ordnance (HERO) Testing, analysis, and reports.

SM-2 BLK IIIC, formerly STANDARD Missile-2 Improvements, engineering changes funding is for the design, systems engineering, analysis, integration, and test of replacements for obsolete components as well as performance improvements to address emerging threats. Analysis will include evaluation of transition to an active seeker baseline leveraging the investment made with the SM-6 BLK I and ESSM Block II missiles. Initial funding is for the requirements generation, risk reduction/mitigation, and documentation leading to the commencement of the obsolescence project. Capability improvements: Enhanced stream-raid performance against numerous threats via target resolution and missile/target pairing logic, over-the-horizon capability for increased depth of fire, enhanced capability against electronic attack, improved firepower due to decreased dependence on illuminators, and enhanced fuzing. The program has been designated an Accelerated Acquisition (AA) program by the CNO/ASN RDA on November 14, 2017. The program schedule will be shifted to reflect the change in process. Initial Capability (IC) planned for Q2FY2023.

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

	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Title: SM-2 BLK IIIC (formerly Standard Missile-2 Improvement)	13.221	99.177	71.910	0.000	71.910
Articles:	-	-	-	-	-
FY 2019 Plans: Awarded Engineering Manufacturing and Development (EMD) contract. Perform and support WSESRBs. Perform Jet tab assemblies, Hybrid control surface assembly and dorsal fins prototype testing to verify design. Continue Vertical Launch System (VLS) and canister development efforts. Begin VLS software testing. Continue AUR component development and testing, as well as missile software development. Qualify Insensitive					

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Appropriation/Budget Activity 1319 / 5		R-1 Program Element (Number/Name) PE 0604366N / Standard Missile Improvements		Project (Number/Name) 0439 / Standard Missile Improvement		
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)		FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Munitions (IM) efforts that enhance the safety and reaction of our weapons for a single pulse Electronic Ignition Safety Device (EISD). FY 2020 Base Plans: Prepare for and support a Rapid Fielding Decision (RFD). Perform and support WSESRBs. Continue Jet tab assembly, hybrid control surface assembly, and dorsal fin testing to verify design. Continue Vertical Launch System (VLS) and canister development efforts. Continue missile software development and AEGIS integration. Make preparations for Controlled Test Vehicle 1 (CTV-1) flight test at White Sands Missile Range (WSMR). FY 2020 OCO Plans: N/A FY 2019 to FY 2020 Increase/Decrease Statement: The decrease in FY 2020 is due to the SM-2 BLK IIIC (formerly SM-2 Improvements) program purchasing the majority of test hardware and test equipment in FY2019. In FY2020, development and testing for the program will continue, but most of the items procured in FY2019. The FY2020 funding request was reduced by (\$3.000) million to account for the availability of prior year execution balances.						
Title: Air and Missile Defense Radar (AMDR) Integration & Test Articles:		11.049 -	10.881 -	10.623 -	0.000 -	10.623 -
FY 2019 Plans: Continue conducting E3/HERO analysis and qualification testing. Conduct E3 test using inert operational missile with SPY-6 engineering development model array. Continue to develop, integrate, test and implement ET-17 solutions to address missile/CS interface. Prepare for and support ACB 20 IPR process and continue to address missile/ET-17 related actions. Continue to attend and support missile FLT III Ordnance EMI/HERO issue mitigation test and analysis. FY 2020 Base Plans: Plan and support missile radar and combat system (CS) testing using IOM/VOM with AEGIS combat system using SPY-6 at SCSC, Surface Combat System Center Wallops Island. Continue to integrate and implement ET-17 solutions HERO Issue testing as required. Support ACB 20 IPR Process. FY 2020 OCO Plans:						

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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 decrease is due to control cost by the missile test program in FY 2020 by aligning with the Combat System Test Program.						
Accomplishments/Planned Programs Subtotals		24.270	110.058	82.533	0.000	82.533
C. Other Program Funding Summary (\$ in Millions) N/A						
Remarks						
D. Acquisition Strategy Engineering and integration testing for SM-2 BLK IIIC (formerly SM-2 Improvements) in FY 2017-FY 2023 to support Developmental Test in FY 2021 and continue follow-on ship integration and design update effort in FY 2022.						
E. Performance Metrics Perform E3/HERO design, analyses, and E3/HERO qualification tests for AMDR in FY 2017-2019. AMDR MCTS/MSU Uplink/Downlink testing is planned for FY 2017/2019. AMDR IOM, MSU, or VOM testing is planned for FY2019-2021. Combat System Integration for AMDR is planned for FY2020-2021 Waterfront Integration Testing for AMDR is planned for FY2021/2022. AMDR ET-17 MSLEX 4Q2023 SM-2 BLK IIIC (SM-2 Improvements) Preliminary Design IPR in FY2019. SM-2 BLK IIIC (SM-2 Improvements) Software systems Safety Technical Review Panel (SSSTRP) in FY2018. SM-2 BLK IIIC (SM-2 Improvements) Weapons System Explosive Safety Review Board (WSESRB) in FY2019.						

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<p>SM-2 BLK IIIC (SM-2 Improvements) Developmental Test in FY2022.</p> <p>SM-2 BLK IIIC (SM-2 Improvements) Obtain Initial Capability approval in FY 2023.</p>		

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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 0604366N / <i>Standard Missile Improvements</i>				Project (Number/Name) 0439 / <i>Standard Missile Improvement</i>					
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
Design and Analysis1	C/CPFF	RAYTHEON : Tucson, AZ	305.509	13.103	Nov 2017	75.162	Nov 2018	50.286	Nov 2019	-		50.286	Continuing	Continuing	Continuing
Design and Analysis2	C/CPFF	JHU/APL : Laurel, MD	11.906	3.955	Nov 2017	6.308	Nov 2018	5.700	Nov 2019	-		5.700	0.000	27.869	-
Design and Analysis3	MIPR	MIT/Lin Lab : Lexington, MA	0.050	0.000		0.000		0.000		-		0.000	0.000	0.050	-
Design and Analysis4	WR	NSWC : Dahlgren	789.605	1.212	Nov 2017	1.125	Nov 2018	0.280	Nov 2019	-		0.280	0.000	792.222	-
Design and Analysis5	WR	NSWC : Indian Head	0.940	0.000		0.059	Nov 2018	0.000		-		0.000	0.000	0.999	-
Design and Analysis6	WR	NAWC : China Lake	5.029	0.600	Nov 2017	0.315	Nov 2018	0.165	Nov 2019	-		0.165	0.000	6.109	-
Design and Analysis7	Various	LOCKHEED MARTIN : Moorestown, NJ	17.775	0.000		0.000		0.000		-		0.000	0.000	17.775	-
Design and Analysis8	WR	CNO : Washington, DC	0.010	0.000		0.000		0.000		-		0.000	0.000	0.010	-
Design and Analysis9	WR	CMDP : Phoenix, AZ	4.795	0.000		0.000		0.000		-		0.000	0.000	4.795	-
Design and Analysis11	WR	NSWC : Crane	0.257	0.000		0.000		0.000		-		0.000	0.000	0.257	-
Design and Analysis12	WR	DOI&CNAP : Washington, DC	0.487	0.000		0.000		0.000		-		0.000	0.000	0.487	-
Design and Analysis13	WR	COMPTEVFOR : Norfolk, VA	0.200	0.100	Nov 2017	0.160	Nov 2018	0.000		-		0.000	0.000	0.460	-
Design and Analysis14	C/CPFF	LOCKHEED MARTIN : Moorestown, NJ	2.000	0.000		0.000		0.000		-		0.000	0.000	2.000	-
Design and Analysis15	WR	CARDEROCK : Bethesda, MD	0.050	0.000		0.030	Dec 2018	0.000		-		0.000	0.000	0.080	-
Design and Analysis16	WR	NWAS : Corona	0.936	0.500	Nov 2017	0.125	Nov 2018	0.000		-		0.000	0.000	1.561	-
Design and Analysis17	C/CPFF	CORVID : Mooresville, NC	0.100	0.000		0.000		0.000		-		0.000	0.000	0.100	-
Design and Analysis18	C/CPFF	BAE : Rockville, MD	0.172	0.000		0.140	Jan 2019	0.160	Nov 2019	-		0.160	0.000	0.472	-
Design and Analysis19	MIPR	MDA : Dahlgren,VA	1.257	0.000		0.000		0.000		-		0.000	0.000	1.257	-

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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
Design and Analysis20	WR	IWS3D : ARLINGTON, VA	1.500	0.000		0.000		0.000		-		0.000	0.000	1.500	-
Design and Analysis21	WR	VARIOUS : IWS (IWS 1)	17.281	1.010	Nov 2017	14.447	Nov 2018	12.608	Nov 2019	-		12.608	0.000	45.346	-
Design and Analysis22	WR	IWS3L : Arlington, Va	0.000	2.250	Nov 2017	8.600	Nov 2018	4.375	Nov 2019	-		4.375	0.000	15.225	-
Design and Analysis23	WR	NSWC : PHD	0.000	0.684	Nov 2017	0.075	Nov 2018	0.000		-		0.000	0.000	0.759	-
Subtotal			1,159.859	23.414		106.546		73.574		-		73.574	Continuing	Continuing	N/A
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
DEVELOPMENTAL TEST & EVALUATION1	WR	NSWC : Port Hueneme	0.185	0.000		0.000		0.000		-		0.000	0.000	0.185	-
DEVELOPMENTAL TEST & EVALUATION2	WR	WSMR : New Mexico	1.600	0.000		0.030	Nov 2018	1.000	Nov 2019	-		1.000	0.000	2.630	-
DEVELOPMENTAL TEST & EVALUATION3	WR	NAWC : Pt Mugu	0.098	0.000		0.000		0.000		-		0.000	0.000	0.098	-
DEVELOPMENTAL TEST & EVALUATION4	WR	PMRF : Hawaii	0.338	0.000		0.000		0.000		-		0.000	0.000	0.338	-
DEVELOPMENTAL TEST & EVALUATION5	WR	NSWC : PHD/ Techrep	0.567	0.000		0.000		0.000		-		0.000	0.000	0.567	-
DEVELOPMENTAL TEST & EVALUATION6	SS/CPFF	RAYTHEON : Tucson, Az	0.000	0.000		0.000		1.695	Nov 2019	-		1.695	0.000	1.695	-
DEVELOPMENTAL TEST & EVALUATION7	C/CPFF	JHU/APL : Laurel, Md	0.000	0.000		0.000		0.519	Nov 2019	-		0.519	0.000	0.519	-
DEVELOPMENTAL TEST & EVALUATION7	C/CPIF	VARIOUS : IWS (IWS 1)	0.000	0.000		0.000		2.372	Nov 2019	-		2.372	0.000	2.372	-
DEVELOPMENTAL TEST & EVALUATION7	WR	NSWC : Dahlgren	0.000	0.000		0.000		0.248	Nov 2019	-		0.248	0.000	0.248	-

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Appropriation/Budget Activity 1319 / 5						R-1 Program Element (Number/Name) PE 0604366N / <i>Standard Missile Improvements</i>				Project (Number/Name) 0439 / <i>Standard Missile Improvement</i>					
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
Subtotal			2.788	0.000		0.030		5.834		-		5.834	0.000	8.652	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
CONTRACTOR ENGINEERING SUPPORT	C/CPAF	VARIOUS : VARIOUS	2.630	0.000		0.000		0.000		-		0.000	0.000	2.630	-
PROGRAM MANAGEMENT SUPPORT	C/CPAF	VARIOUS : VARIOUS	5.214	0.796	Nov 2017	3.402	Nov 2018	3.105	Nov 2019	-		3.105	0.000	12.517	-
TRAVEL	Allot	IWS3 : Arlington, VA	0.336	0.060	Nov 2017	0.080	Nov 2018	0.020	Nov 2019	-		0.020	0.000	0.496	-
Subtotal			8.180	0.856		3.482		3.125		-		3.125	0.000	15.643	N/A
			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			1,170.827	24.270		110.058		82.533		-		82.533	Continuing	Continuing	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 0604366N / Standard Missile
Improvements

Project (Number/Name)

0439 / Standard Missile Improvement

	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024			
	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
Proj 0439																												
JUWL Software Systems Safety Technical Review Panel 3																												
JUWL Weapon Systems Explosive Safety Review Board 3																												
JUWL IOC																												
AMDR Land Based Testing																												
AMDR DT/OT																												
AMDR DDG 51 FLT III IOC																												
AMDR ET-17 MSLEX During CSSQT																												
AMDR WIT																												
AMDR HERO Testing																												
AMDR Test Planning																												
AMDR WIT 2																												
SM-2 BLK IIIC (formerly SM-2 Improvements) Preliminary Design IPR																												
SM-2 BLK IIIC Weapon Systems Explosive Safety Review Board																												
SM-2 BLK IIIC Weapon Systems Explosive Safety Review Board 2																												
SM-2 BLK IIIC (formerly SM-2 Improvements) Critical Design IPR																												
SM-2 BLK IIIC Software Systems Safety Technical Review Panel																												
SM-2 BLK IIIC Weapon Systems Explosive Safety Review Board 3																												

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 Navy																				Date: March 2019																	
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										FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024			
										1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4				
SM-2 BLK IIIC Software Systems Safety Technical Review Panel 2										█																											
SM-2 BLK IIIC (formerly SM-2 Improvements) CTV/GTV										█																											
SM-2 BLK IIIC Weapon Systems Explosive Safety Review Board 4										█																											
SM-2 BLK IIIC (formerly SM-2 Improvements) DT-1/2										█																											
SM-2 BLK IIIC (formerly SM-2 Improvements) System Verification Review										█																											
SM-2 BLK IIIC (formerly SM-2 Improvements) Initial Capability										█																											
SM-2 BLK IIIC Software Systems Safety Technical Review Panel 3										█																											
SM-2 BLK IIIC Software Systems Safety Technical Review Panel 4										█																											

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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 0604366N / <i>Standard Missile Improvements</i>	Project (Number/Name) 0439 / <i>Standard Missile Improvement</i>	

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Proj 0439				
JUWL Software Systems Safety Technical Review Panel 3	3	2019	3	2019
JUWL Weapon Systems Explosive Safety Review Board 3	3	2019	3	2019
JUWL IOC	2	2020	2	2020
AMDR Land Based Testing	1	2018	2	2021
AMDR DT/OT	2	2023	2	2024
AMDR DDG 51 FLT III IOC	4	2024	4	2024
AMDR ET-17 MSLEX During CSSQT	4	2023	4	2023
AMDR WIT	1	2023	1	2023
AMDR HERO Testing	1	2022	1	2022
AMDR Test Planning	1	2022	4	2023
AMDR WIT 2	3	2023	3	2023
SM-2 BLK IIIC (formerly SM-2 Improvements) Preliminary Design IPR	1	2019	1	2019
SM-2 BLK IIIC Weapon Systems Explosive Safety Review Board	3	2018	3	2018
SM-2 BLK IIIC Weapon Systems Explosive Safety Review Board 2	4	2019	4	2019
SM-2 BLK IIIC (formerly SM-2 Improvements) Critical Design IPR	1	2020	1	2020
SM-2 BLK IIIC Software Systems Safety Technical Review Panel	3	2018	3	2018
SM-2 BLK IIIC Weapon Systems Explosive Safety Review Board 3	2	2021	2	2021
SM-2 BLK IIIC Software Systems Safety Technical Review Panel 2	4	2019	4	2019
SM-2 BLK IIIC (formerly SM-2 Improvements) CTV/GTV	2	2021	4	2021
SM-2 BLK IIIC Weapon Systems Explosive Safety Review Board 4	4	2022	4	2022
SM-2 BLK IIIC (formerly SM-2 Improvements) DT-1/2	2	2022	2	2022

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		Start		End	
Events by Sub Project		Quarter	Year	Quarter	Year
SM-2 BLK IIIC (formerly SM-2 Improvements) System Verification Review		4	2022	4	2022
SM-2 BLK IIIC (formerly SM-2 Improvements) Initial Capability		2	2023	2	2023
SM-2 BLK IIIC Software Systems Safety Technical Review Panel 3		3	2021	3	2021
SM-2 BLK IIIC Software Systems Safety Technical Review Panel 4		1	2023	1	2023

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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 0604366N / <i>Standard Missile Improvements</i>				Project (Number/Name) 2063 / <i>SM-6 Blk IB</i>			
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
2063: <i>SM-6 Blk IB</i>	0.000	0.000	0.000	116.700	-	116.700	138.700	95.500	24.300	3.700	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		
A. Mission Description and Budget Item Justification												
This program leverages existing missile technology and advanced missile technology from the Phase 1A RPED rocket motor effort completing in FY 19. It aligns with the STANDARD Missile roadmap and takes advantage of the Navy's investment in the AEGIS Weapon System (AWS). This missile will provide an extended range capability for SM-6 and will be a key contributor to the protection of Joint U.S. Forces, in support of the 2018 National Defense Strategy. SM-6 Block IB addresses valid Joint, Fleet, and Navy Urgent Operational Needs and existing, JROC-approved requirements.												
The Accelerated Acquisition Board of Directors (AA BoD) met on 17 January 2018 and approved the designation of the SM-6 Block IB Phase IA as a Rapid Prototyping, Experimentation and Demonstration (RPED) project. This designation acknowledged the requirement to expedite the development, acquisition and fielding of the SM-6 Block IB to Naval Forces. The AA BoD met 9 November 2018 and directed SM-6 BLKIB to commence All Up Round prototyping (Phase IB).												
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)								FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Title: SM-6 BLK IB <div>Articles:</div> FY 2019 Plans: N/A FY 2020 Base Plans: RDTEN funding for 21-inch rocket motor will inform Engineering and Manufacturing Development (EMD) for a fully qualified system. Design, fabricate, test and qualification of multiple 21-inch diameter rocket motor prototypes. Fund design study contracts for a new 21-inch rocket motor and missile steering control section. Conduct technical, schedule, and cost analyses for the integration of a new 21-inch rocket motor, a new steering control section (SCS), and modified control surface areas (CSA) to be integrated with existing components of the SM-6 Block IA missile. Develop preliminary design of a modified Power Conditioning & Telemetry (PC&T) transition section and conduct associated design trade studies. Conduct thermal analyses for all non-developmental components, and design and develop a new All-Up-Round (AUR) Thermal Protection System (TPS). Identify and implement design modifications to the Vertical Launch System (VLS) Mk 29 canister. Plan and execute combat systems integration and testing. Update all associated design and interface specifications as necessary. Update the tactical simulation, guidance navigation and control, autopilot algorithms and digital								0.000	0.000	116.700	0.000	116.700
								-	-	-	-	-

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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 0604366N / <i>Standard Missile Improvements</i>		Project (Number/Name) 2063 / <i>SM-6 Blk IB</i>		
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)						
		FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
signal processing for the SM-6 Block IB AUR. Coordinate efforts with the NAVSEA/NOSSA to obtain required qualifications and system safety certifications. <i>FY 2020 OCO Plans:</i> N/A <i>FY 2019 to FY 2020 Increase/Decrease Statement:</i> FY 20 increase is for SM-6 BLK IB program which provides funding for rocket motor prototyping and development and AUR integration and testing.						
Accomplishments/Planned Programs Subtotals		0.000	0.000	116.700	0.000	116.700
C. Other Program Funding Summary (\$ in Millions)						
N/A						
Remarks						
D. Acquisition Strategy						
SM-6 Block IB Acquisition Strategy in development.						
E. Performance Metrics						
Upcoming milestones: - CDR FY20 - SM-6 BLK IB LRIP FY21 - Control Test Vehicle events (CTV) (2) 2QFY21, 4QFY21 - Guided Test Vehicle events (GTV) (2) 2QFY22, 4QFY22 - Developmental Test and Evaluation (DT&E) event (1) 1QFY23 - DT&E/Operational Test and Evaluation (OT&E)(DT/OT) event (1) 2QFY23 - Initial Capability (IC) FY23						

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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 0604366N / <i>Standard Missile Improvements</i>				Project (Number/Name) 2063 / <i>SM-6 Blk IB</i>					
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
Design and Analysis	C/CPFF	JHU/APL : Laurel, MD	0.000	0.000		0.000		9.336	Nov 2019	-		9.336	Continuing	Continuing	Continuing
Design and Analysis	WR	NAWC WD : China Lake	0.000	0.000		0.000		9.336	Nov 2019	-		9.336	Continuing	Continuing	Continuing
Design and Analysis	WR	NSWC : Indian Head	0.000	0.000		0.000		4.668	Nov 2019	-		4.668	Continuing	Continuing	Continuing
Design and Analysis	C/CPFF	Raytheon : Tucson, AZ	0.000	0.000		0.000		48.314	Nov 2019	-		48.314	Continuing	Continuing	Continuing
Design and Analysis	TBD	TBD : TBD	0.000	0.000		0.000		29.875	Nov 2019	-		29.875	Continuing	Continuing	Continuing
Subtotal			0.000	0.000		0.000		101.529		-		101.529	Continuing	Continuing	N/A
Remarks															
Line 6 is an open competition for the Rocket Motor, Steering Control System and the Control Surface Assembly.															
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
Developmental Test and Evaluation	C/CPFF	JHU/APL : Laurel, MD	0.000	0.000		0.000		1.167	Nov 2019	-		1.167	Continuing	Continuing	Continuing
Developmental Test and Evaluation	WR	NAWC WD : China Lake	0.000	0.000		0.000		1.167	Nov 2019	-		1.167	Continuing	Continuing	Continuing
Developmental Test and Evaluation	WR	NSWC : Port Hueneme	0.000	0.000		0.000		3.501	Nov 2019	-		3.501	Continuing	Continuing	Continuing
Developmental Test and Evaluation	C/CPFF	Raytheon : Tucson, AZ	0.000	0.000		0.000		5.835	Nov 2019	-		5.835	Continuing	Continuing	Continuing
Subtotal			0.000	0.000		0.000		11.670		-		11.670	Continuing	Continuing	N/A

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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 0604366N / Standard Missile Improvements				Project (Number/Name) 2063 / SM-6 Blk IB					
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
Program Management Support	C/CPFF	VARIOUS : VARIOUS	0.000	0.000		0.000		3.501	Nov 2019	-		3.501	Continuing	Continuing	Continuing
Subtotal			0.000	0.000		0.000		3.501		-		3.501	Continuing	Continuing	N/A
			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			0.000	0.000		0.000		116.700		-		116.700	Continuing	Continuing	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 0604366N / <i>Standard Missile Improvements</i>			Project (Number/Name) 2063 / <i>SM-6 Blk IB</i>

	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024			
	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
Proj 2063																												
Control Test Vehicle events (CTV) (2)																												
Guided Test Vehicle events (GTV) (2)																												
Developmental Test and Evaluation (DT&E) event (1)																												
DT&E/Operational Test and Evaluation (OT&E)(DT/OT) event (1)																												
Wind Testing Tunnel																												
Fuze and Initiation Systems Technical Review Panel (1)																												
Software Systems Safety Technical Review Panel (1)																												
Weapon Systems Explosive Safety Review Board (1)																												
Fuze and Initiation Systems Technical Review Panel (2)																												
Software Systems Safety Technical Review Panel (2)																												
Weapon Systems Explosive Safety Review Board (2)																												
Weapon Systems Explosive Safety Review Board (3)																												

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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 0604366N / <i>Standard Missile Improvements</i>	Project (Number/Name) 2063 / <i>SM-6 Blk IB</i>	

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Proj 2063				
Control Test Vehicle events (CTV) (2)	4	2021	4	2021
Guided Test Vehicle events (GTV) (2)	4	2022	4	2022
Developmental Test and Evaluation (DT&E) event (1)	1	2023	1	2023
DT&E/Operational Test and Evaluation (OT&E)(DT/OT) event (1)	2	2023	2	2023
Wind Testing Tunnel	1	2020	1	2020
Fuze and Initiation Systems Technical Review Panel (1)	1	2021	1	2021
Software Systems Safety Technical Review Panel (1)	1	2021	1	2021
Weapon Systems Explosive Safety Review Board (1)	1	2021	1	2021
Fuze and Initiation Systems Technical Review Panel (2)	1	2022	1	2022
Software Systems Safety Technical Review Panel (2)	1	2022	1	2022
Weapon Systems Explosive Safety Review Board (2)	1	2022	1	2022
Weapon Systems Explosive Safety Review Board (3)	1	2023	1	2023

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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 0604366N / <i>Standard Missile Improvements</i>				Project (Number/Name) 3092 / <i>Standard Missile 6 Program</i>			
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
3092: <i>Standard Missile 6 Program</i>	1,290.666	90.532	55.823	33.158	-	33.158	34.608	32.174	16.445	13.026	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This program leverages existing missile technology and advanced missile technology. It aligns missile technology roadmaps across the services (NAVSEA, NAVAIR, USAF, USMC and USA) and missile variants within the services, taking advantage of the Navy's investment in the AEGIS Weapons System (AWS), Cooperative Engagement Capability (CEC), and airborne early warning systems. This missile will provide an extended range engagement capability to provide the air superiority and the umbrella of protection for joint U.S. forces and allies against the full spectrum of manned-fixed and rotary-wing aircraft, unmanned aerial vehicles, and land attack and anti-ship cruise missiles in flight. This missile contributes to the continuous protection of forward deployed ground maneuver forces as well as theater rear assets supporting mission requirements discussed in the National Security Strategy (NSS), Secretary of Defense National Defense Strategy (NDS), Chairman of the Joint Chiefs' National Military Strategy (NMS), Capstone Concept for Joint Operations (CCJO), Joint Requirements Oversight Council (JROC) Integrated Air and Missile Defense (IAMD) Initial Capability Document (ICD), the JROC IAMD Joint Integrating Concept (JIC), JROC IAMD Operational Concept; the Theater and Air Missile Defense ICD (TAMD MDA-ICD), the Chairman of the Joint Chiefs of Staff Joint IAMD Vision 2020/2030 and the Joint Publication 3-01 Countering Air and Missile Threats; the Navy's Integrated Fire Control Naval Integrating Capability Concept (NIFC-NICC), the JROC Operational Requirements Document (ORD) for SM-6 BLK 1, and the JROC SM-6 Capability Production Document.

SM-6 portion of Joint and Naval Integrated Fire Control (IFC) is to support the integration, land-based and at-sea test, and analysis in support of the NIFC-CA test and evaluation strategy. NIFC-CA Increment 1 was successfully executed between 2009 and 2015. NIFC-CA Increment 2 commenced in FY 16 and will be tested in FY19 and FY20. It integrates sensor improvements, SM-6 BLK 1A, CEC and AWS ACB 16 into an advanced from the sea (FTS) Kill chain. Efforts include support for the WSMR upgrade, Trackex events, Integration Events and Live Fire test at land based and at-sea tests.

Future Capabilities Demonstration project supports systems engineering, SM demonstrations, captive flight tests, data collection, and analysis tasks to develop and demonstrate new capabilities for the SM-6 Missile. These capabilities directly support high priority mission requirements requested by Combatant Commanders. Additional details are held at a higher classification.

SM-6 System Engineering and Flight Test supports the development of the next guidance section software configuration. This includes the research, development, test and evaluation necessary to incorporate the software in production missiles.

STANDARD Missile 6 Electronics Unit funding is for the design, systems engineering, analysis, integration, and test of replacements for obsolete components. Funding will be combined with Missile Defense Agency funding for a shared approach to obsolescence and improved capability in defense of the sea base. Initial funding is for the requirements generation, risk reduction/mitigation, and establishment of development facilities necessary for the commencement of the obsolescence project.

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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 0604366N / Standard Missile Improvements		Project (Number/Name) 3092 / Standard Missile 6 Program		
Capability improvements are limited to those required by Missile Defense Agency. The Missile Defense Agency is the contracting office and expect a RFP issued in Q4FY18 with contract award in Q2FY19.						
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)		FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Title: Electronics Unit (EU) Obsolescence-Upgrade		0.000	0.000	26.905	0.000	26.905
Articles:		-	-	-	-	-
FY 2019 Plans: N/A						
FY 2020 Base Plans: Conduct a system level PDR and then design, integrate and begin qualification on hardware. Develop tactical software and simulations. Begin planning and execution of captive flight test campaign to characterize performance and refine missile tactical software and simulation.						
FY 2020 OCO Plans: N/A						
FY 2019 to FY 2020 Increase/Decrease Statement: The FY 20 increase is for SM-6 Electronic Unit (EU) Obsolescence-Upgrade program iniation which provides funding to support development, design, and testing of new EU hardware for SM-6 BLK 1A. The current EU contains obsolete components that are no longer procurable. The FY2020 funding request was reduced (\$6.569M) to account for the availability of prior year execution balances.						
Title: SM-6 System Engineering and Flight Test Support		6.018	5.500	0.000	0.000	0.000
Articles:		-	-	-	-	-
FY 2019 Plans: Prepare SM-6 BLKI software engineering change proposal for review and approval. Conduct follow on regression test. Perform a flight test, for the collection of data, performance and analysis, and reliability assessments.						
FY 2020 Base Plans: N/A						
FY 2020 OCO Plans: N/A						
FY 2019 to FY 2020 Increase/Decrease Statement:						

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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 0604366N / Standard Missile Improvements		Project (Number/Name) 3092 / Standard Missile 6 Program		
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)		FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
The decrease in FY 2020 corresponds to completion of software development activities and transition to production.						
Title: Naval Integrated Fire Control - Counter Air (NIFC-CA) FY 2019 Plans: Continue supporting Increment 2 System of System (SoS) integration and test activities associated with the White Sands Missile Range (WSMR) Desert Ship Upgrade. Support test event LFT (6) and At-Sea (6). FY 2020 Base Plans: Continue supporting Increment 2 System of System (SoS) integration and test activities associated with the White Sands Missile Range (WSMR) Desert Ship Upgrade. Commence work for SM-6 BLK I and IA NIFC-CA related software upgrades. Support test event LFT (7) and At-Sea (7). FY 2020 OCO Plans: N/A FY 2019 to FY 2020 Increase/Decrease Statement: The increase is due to supporting two test flight events in FY 2020 with higher rates.		6.018 Articles: -	2.988 -	3.213 -	0.000 -	3.213 -
Title: Future Capability Demonstration FY 2019 Plans: Continue development of additional capabilities in SM-6 Blk IA missile. Complete preparations for and conduct Future Capability Demonstration At-Sea Test 3 (two CTVs and one TACDEMO flight), which was delayed from 3QFY18 due to test ship non-availability, in 3QFY19. Complete preparation for and support Future Capability Demonstration Land-Based Test 1 (two TACDEMO flights) in 3Q/4QFY19. Complete all preparations for Future Capability Demonstration At-Sea Test 4 (one TACDEMO flight) in 1QFY20. Conduct captive flight tests (CFTs) for collection of data, performance analysis, and reliability assessments. Complete missile and AEGIS combat system software development and conduct necessary software alignment with other SM-6 capabilities. Additional details are held at a higher classification. FY 2020 Base Plans:		78.496 Articles: -	47.335 -	3.040 -	0.000 -	3.040 -

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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 0604366N / Standard Missile Improvements				Project (Number/Name) 3092 / Standard Missile 6 Program			
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)							FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Conduct Future Capability Demonstration At-Sea Test 4 (one TACDEMO flight) in 1QFY20. Complete post-test analysis. Generate objective quality evidence (OQE) to support a software Engineering Change Proposal (ECP) to cut the new capabilities into the SM-6 Blk IA production line.											
FY 2020 OCO Plans: N/A											
FY 2019 to FY 2020 Increase/Decrease Statement: The reduction is due to effort transitioning to production.											
Accomplishments/Planned Programs Subtotals							90.532	55.823	33.158	0.000	33.158
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
• WPN 2234: Standard Missile	491.260	615.893	500.608	-	500.608	593.909	634.894	581.302	902.917	2,579.554	9,711.486
• Standard Missile: QTY	125.000	125.000	125.000	-	125.000	125.000	125.000	125.000	0.000	386.000	1,800.000
Remarks											
WPN 2234 includes SM-6 BLK IB, WIB MAT Project I issue and SM-6 BLK I/IA multiyear procurement. Quantities only reflect SM-6 BLK I/IA. PDOCS Check is not reflective of the WPN 2234 controls.											
D. Acquisition Strategy											
SM-6 Acquisition Strategy signed by OSD AT&L 14 March 2012.											
E. Performance Metrics											
Accomplishments											
- Future Capability Demonstration Captive Flight Test 2nd quarter 2015 - 1st quarter 2016											
- Future Capability Demonstration Captive Test Vehicle events Feb 2015											
- DT (FOT&E) 2015											
- Future Capability Demonstration At-Sea Test (2) Jan 2016											
- NIFC-CA At-Sea Test (3) Sep 2016											
- NIFC-CA Live Fire Test (4) (Joint Strike Fighter Demo) Sep 2016											
- OT (FOT&E) Jan 2016											
- Future Capability Demonstration Captive Flight Test (CFT) (3) Mar 2017											
- NIFC-CA Live Fire Test (5) May 2017											

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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 0604366N / <i>Standard Missile Improvements</i>	Project (Number/Name) 3092 / <i>Standard Missile 6 Program</i>
<ul style="list-style-type: none"> - Operational Test (OT-5/15) Apr 2017 - Full Operational Capability (FOC) Dec 2017 - NIFC-CA At-Sea Test (4) July 2018 - Future Capability Demonstration Guided Test Vehicle 4 (GTV-4) Test September FY 18 <p>Upcoming Milestones</p> <ul style="list-style-type: none"> - Integrated Fire Control (IFC) Increments I (Oct 2008-Sep 2015) and II (Oct 2015-Sep 2022) - Future Capability Demonstration At-Sea Test (3) 3Q FY 19 - Future Capability Demonstration Land-Based Test (1) 3Q/4Q FY 19 - Future Capability Demonstration At-Sea Test (4) 1Q FY 20 - Future Capability Demonstration Captive Flight Test (CFT) (4) 1Q-2Q FY 18 - Future Capability Demonstration Captive Flight Test (CFT) (5) 3Q FY 18 - 1Q FY 19 <ul style="list-style-type: none"> - NIFC-CA Live Fire Test (6) 2Q FY 19 - NIFC-CA At-Sea Test (6) 4Q FY 19 - NIFC-CA At-Sea Test (7) 1Q FY 20 - NIFC-CA Live Fire Test (7) 3Q FY 20 - System Requirements Review in Q2FY19 - Electronics Unit System Preliminary Design Review in Q2FY20 - Electronics Unit Software and Hardware Critical Design Review Q4FY20 - Electronics Unit System Critical Design Review Q2FY21 - Electronics Unit Guided Test Vehicle-1 at White Sands Missile Range Q3FY22 - Electronics Unit At Sea Testing Q2FY23 - Electronics Unit Engineering Change Proposal for production Q2FY24 		

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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 0604366N / <i>Standard Missile Improvements</i>				Project (Number/Name) 3092 / <i>Standard Missile 6 Program</i>					
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
Design & Analysis	C/CPFF	RAYTHEON : Tucson, AZ	762.668	23.119	Nov 2017	17.352	Nov 2018	22.502	Nov 2019	-		22.502	Continuing	Continuing	Continuing
Design & Analysis	C/CPFF	JHU/APL : Laurel MD	60.169	6.978	Nov 2017	5.144	Nov 2018	3.716	Nov 2019	-		3.716	0.000	76.007	-
Design & Analysis	MIPR	MIT/Lin Lab : Lexington, MA	0.550	0.000		0.000		0.000		-		0.000	0.000	0.550	-
Design & Analysis	WR	NAWC : China Lake	5.768	7.376	Nov 2017	0.480	Nov 2018	0.400	Nov 2019	-		0.400	0.000	14.024	-
Design & Analysis	WR	NSWC : Dahlgren	11.949	0.959	Nov 2017	0.000		0.400	Nov 2019	-		0.400	0.000	13.308	-
Design & Analysis	WR	NSWC : Indian Head	3.942	0.000		0.000		0.000		-		0.000	0.000	3.942	-
Design & Analysis	WR	NSWC : PHD	11.067	1.560	Nov 2017	0.000		0.000		-		0.000	0.000	12.627	-
Design & Analysis	WR	NSWC : Crane	1.256	0.000		0.000		0.100	Nov 2019	-		0.100	0.000	1.356	-
Design & Analysis	MIPR	JSPO : Eglin AFB	24.049	0.000		0.000		0.000		-		0.000	0.000	24.049	-
Design & Analysis	C/CPFF	LOCKHEED Martin : Moorestown, NJ	6.074	0.000		0.000		0.000		-		0.000	0.000	6.074	-
Design & Analysis	WR	NSWC : Corona	20.664	3.536	Nov 2017	0.000		0.000		-		0.000	0.000	24.200	-
Design & Analysis	Reqn	ONR : Arlington, VA	5.320	0.000		0.000		0.000		-		0.000	0.000	5.320	-
Design & Analysis	Reqn	NRL : Washington, DC	0.140	0.000		0.000		0.000		-		0.000	0.000	0.140	-
Design & Analysis	WR	COMPTEVFOR : Norfolk, VA	2.620	0.000		0.000		0.000		-		0.000	0.000	2.620	-
Design & Analysis	WR	CARDEROCK : Philadelphia, PA	3.858	0.200	Nov 2017	0.000		0.000		-		0.000	0.000	4.058	-
Design & Analysis	WR	NSWC : Pt Mugu	0.613	0.000		0.000		0.000		-		0.000	0.000	0.613	-
Design & Analysis	C/CPFF	BAE : Rockville, MD	6.486	0.000		0.000		0.000		-		0.000	0.000	6.486	-
Design & Analysis	MIPR	ARMY : Redstone	0.350	0.000		0.000		0.000		-		0.000	0.000	0.350	-
Design & Analysis	WR	NAWCAD : Pax River, MD	3.712	0.050	Nov 2017	0.000		0.000		-		0.000	0.000	3.762	-
Design & Analysis	C/CPFF	CORVID : Mooresville, NC	10.100	3.200	Nov 2017	1.670	Nov 2018	0.000		-		0.000	0.000	14.970	-
Design & Analysis	C/CPFF	RNB : Arlington, VA	0.010	0.000		0.000		0.000		-		0.000	0.000	0.010	-

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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 0604366N / Standard Missile Improvements				Project (Number/Name) 3092 / Standard Missile 6 Program					
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
Design & Analysis	WR	SPAWAR : Arlington, VA	0.007	0.000		0.000		0.000		-		0.000	0.000	0.007	-
Design & Analysis	WR	ARMY : Cecom	0.066	0.000		0.000		0.000		-		0.000	0.000	0.066	-
Design & Analysis	C/FP	GENERAL DYNAMICS : Falls Church, VA	1.660	0.000		0.000		0.000		-		0.000	0.000	1.660	-
Design & Analysis	WR	VARIOUS : (IWS 1A)	104.982	17.275	Nov 2017	9.455	Nov 2018	0.000		-		0.000	0.000	131.712	-
Design & Analysis	WR	VARIOUS : (VLS)	25.674	0.000		0.000		0.000		-		0.000	0.000	25.674	-
Design & Analysis	WR	NSWC : WSMR	0.200	0.000		0.000		0.000		-		0.000	0.000	0.200	-
Design & Analysis	WR	PMRF : Hawaii	3.106	0.700	Nov 2017	0.000		0.000		-		0.000	0.000	3.806	-
Design & Analysis	WR	DOI : Washington D.C.	0.000	0.000		0.000		0.000		-		0.000	0.000	0.000	-
Subtotal			1,077.060	64.953		34.101		27.118		-		27.118	Continuing	Continuing	N/A
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
Developmental Test & Evaluation	WR	NSWC : Port Hueneme	6.429	1.700	Nov 2017	1.245	Nov 2018	0.060	Nov 2019	-		0.060	0.000	9.434	-
Developmental Test & Evaluation	WR	NSWC : WSMR	27.292	2.733	Nov 2017	3.175	Nov 2018	0.000		-		0.000	0.000	33.200	-
Developmental Test & Evaluation	WR	PMRF : Hawaii	42.301	2.300	Nov 2017	3.000	Nov 2018	0.000		-		0.000	0.000	47.601	-
Developmental Test & Evaluation	WR	NAWC : Pt Mugu	4.191	1.000	Nov 2017	0.875	Nov 2018	0.000		-		0.000	0.000	6.066	-
Developmental Test & Evaluation	C/CPAF	RAYTHEON : Tucson, AZ	42.917	6.500	Nov 2017	3.200	Nov 2018	0.800	Nov 2019	-		0.800	0.000	53.417	-
Developmental Test & Evaluation	C/CPFF	JHU/APL : Laurel, MD	17.063	0.941	Nov 2017	1.800	Nov 2018	0.980	Nov 2019	-		0.980	0.000	20.784	-

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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 0604366N / Standard Missile Improvements				Project (Number/Name) 3092 / Standard Missile 6 Program					
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
Developmental Test & Evaluation	WR	NSWC : Corona	12.976	0.600	Nov 2017	2.750	Nov 2018	1.250	Nov 2019	-		1.250	0.000	17.576	-
Developmental Test & Evaluation	WR	NSWC : Dahlgren	2.466	0.300	Nov 2017	0.620	Nov 2018	0.850	Nov 2019	-		0.850	0.000	4.236	-
Developmental Test & Evaluation	WR	VLS : Arlington, VA	2.369	0.000		0.000		0.000		-		0.000	0.000	2.369	-
Developmental Test & Evaluation	WR	COMPTEVFOR : Norfolk, Va	1.664	0.225	Nov 2017	0.230	Nov 2018	0.000		-		0.000	0.000	2.119	-
Developmental Test & Evaluation	WR	VARIOUS : (IWS 1A)	3.782	0.500	Nov 2017	0.000		0.000		-		0.000	0.000	4.282	-
Developmental Test & Evaluation	WR	NSWC : Carderock	2.280	0.100	Nov 2017	0.200	Nov 2018	0.000		-		0.000	0.000	2.580	-
Developmental Test & Evaluation	WR	NAWC : China Lake	5.118	4.500	Nov 2017	0.000		0.000		-		0.000	0.000	9.618	-
Developmental Test & Evaluation	WR	ONR : Arlington, Va	3.425	0.000		0.000		0.000		-		0.000	0.000	3.425	-
Developmental Test & Evaluation	WR	DOI : Washington D.C.	0.545	0.000		0.000		0.000		-		0.000	0.000	0.545	-
Subtotal			174.818	21.399		17.095		3.940		-		3.940	0.000	217.252	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
Contractor Engineering Services	C/CPAF	VARIOUS : Various	36.243	4.117	Nov 2017	4.504	Nov 2018	2.000	Nov 2019	-		2.000	0.000	46.864	-
Travel	Various	IWS3 : Arlington, VA	1.415	0.063	Nov 2017	0.123	Nov 2018	0.100	Nov 2019	-		0.100	0.000	1.701	-
DAWDF	C/FP	Not Specified : Not Specified	1.130	0.000		0.000		0.000		-		0.000	0.000	1.130	-
Subtotal			38.788	4.180		4.627		2.100		-		2.100	0.000	49.695	N/A

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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 0604366N / Standard Missile Improvements					Project (Number/Name) 3092 / Standard Missile 6 Program					
			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			1,290.666	90.532		55.823		33.158		-		33.158	Continuing	Continuing	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 0604366N / Standard Missile
Improvements

Project (Number/Name)

3092 / Standard Missile 6 Program

	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024			
	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
Proj 3092																												
Full Operational Capability (FOC)																												
Future Capability Demonstration Captive Flight Test (CFT) 4																												
Future Capability Demonstration Land Based Test (LBT) 1																												
Future Capability Demonstration At-Sea test 3																												
Future Capability Demonstration At-Sea test 4																												
Future Capability Demonstration Guided Test Vehicle 4 (GTV-4) Test																												
Future Capability Demonstration Captive Flight Test (CFT) 6																												
Integrated Fire Control Increment 2																												
NIFC-CA At-Sea Test (4)																												
NIFC-CA Live Fire Test (6)																												
NIFC-CA At-Sea Test (6)																												
NIFC-CA Live Fire Test (7)																												
NIFC-CA At-Sea Test (7)																												
Future Capability Demonstration Captive Flight Test (CFT) 5																												
Full Rate Production (FRP) 3 Deliveries																												
Full Rate Production (FRP) 4 Deliveries																												
Full Rate Production (FRP) 5 Deliveries																												
Full Rate Production (FRP) 6 Deliveries																												

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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 0604366N / Standard Missile Improvements										Project (Number/Name) 3092 / Standard Missile 6 Program																					
										FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024							
										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				
Full Rate Production (FRP) 6 Award										█																															
Full Rate Production (FRP) 7 Award										█																															
Full Rate Production (FRP) 8 Award										█																															
Full Rate Production (FRP) 9 Award										█																															
Full Rate Production (FRP) 10 Award										█																															
Full Rate Production (FRP) 11 Award										█																															
Full Rate Production (FRP) 12 Award										█																															

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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 0604366N / <i>Standard Missile Improvements</i>	Project (Number/Name) 3092 / <i>Standard Missile 6 Program</i>	

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Proj 3092				
Full Operational Capability (FOC)	1	2018	1	2018
Future Capability Demonstration Captive Flight Test (CFT) 4	1	2018	2	2018
Future Capability Demonstration Land Based Test (LBT) 1	4	2019	4	2019
Future Capability Demonstration At-Sea test 3	3	2019	3	2019
Future Capability Demonstration At-Sea test 4	4	2019	4	2019
Future Capability Demonstration Guided Test Vehicle 4 (GTV-4) Test	4	2018	4	2018
Future Capability Demonstration Captive Flight Test (CFT) 6	2	2019	3	2019
Integrated Fire Control Increment 2	4	2018	4	2020
NIFC-CA At-Sea Test (4)	4	2018	4	2018
NIFC-CA Live Fire Test (6)	4	2019	4	2019
NIFC-CA At-Sea Test (6)	4	2019	4	2019
NIFC-CA Live Fire Test (7)	3	2020	3	2020
NIFC-CA At-Sea Test (7)	1	2020	1	2020
Future Capability Demonstration Captive Flight Test (CFT) 5	3	2018	1	2019
Full Rate Production (FRP) 3 Deliveries	1	2018	2	2018
Full Rate Production (FRP) 4 Deliveries	3	2018	2	2019
Full Rate Production (FRP) 5 Deliveries	3	2019	2	2020
Full Rate Production (FRP) 6 Deliveries	3	2020	2	2021
Full Rate Production (FRP) 6 Award	2	2018	2	2018
Full Rate Production (FRP) 7 Award	2	2019	2	2019
Full Rate Production (FRP) 8 Award	2	2020	2	2020

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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 0604366N / Standard Missile Improvements		Project (Number/Name) 3092 / Standard Missile 6 Program	
		Start		End	
Events by Sub Project		Quarter	Year	Quarter	Year
Full Rate Production (FRP) 9 Award		2	2021	2	2021
Full Rate Production (FRP) 10 Award		2	2022	2	2022
Full Rate Production (FRP) 11 Award		2	2023	2	2023
Full Rate Production (FRP) 12 Award		2	2024	2	2024

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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 0604366N / Standard Missile Improvements				Project (Number/Name) 9999 / Congressional Adds			
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
9999: Congressional Adds	0.000	0.000	25.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	25.000
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		
A. Mission Description and Budget Item Justification												
STANDARD Missile 6 Electronics Unit funding is for the design, systems engineering, analysis, integration, and test of replacements for obsolete components. Funding will be combined with Missile Defense Agency funding for a shared approach to obsolescence and improved capability in defense of the sea base captured within the SM-6 Dual Increment 3 program. Initial funding is for the requirements generation, risk reduction/mitigation, and establishment of development facilities necessary for the commencement of the obsolescence project. Capability improvements are limited to those required by Missile Defense Agency. The Missile Defense Agency is the contracting office and expect a RFP issued in Q4FY18 with contract award in Q2FY19.												
B. Accomplishments/Planned Programs (\$ in Millions)								FY 2018	FY 2019			
Congressional Add: SM-6 Electronics Unit								0.000	25.000			
FY 2018 Accomplishments: N/A												
FY 2019 Plans: Contract award to Raytheon Missile Systems is expected Q3FY19 followed by a missiles Systems Requirement Review / Systems Functional Review in Q3FY19. FY19 funding will be used to purchase hardware to modernize existing SM-6 Block IA development infrastructure.												
Congressional Adds Subtotals								0.000	25.000			
C. Other Program Funding Summary (\$ in Millions)												
N/A												
Remarks												
D. Acquisition Strategy												
SM-6 Acquisition Strategy signed by OSD AT&L 14 March 2012.												
E. Performance Metrics												
USN funds will be directly sent to MDA per the DD 1144 in the Q3FY19 period to support contract award.												

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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 0604366N / Standard Missile Improvements					Project (Number/Name) 9999 / Congressional Adds				
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
Design and Analysis	C/CPFF	Raytheon : Tucson, AZ	0.000	0.000		20.500	Mar 2019	0.000		-		0.000	0.000	20.500	-
Design and Analysis	C/CPFF	JHU/APL : Laurel, Md	0.000	0.000		2.000	Jan 2019	0.000		-		0.000	0.000	2.000	-
Subtotal			0.000	0.000		22.500		0.000		-		0.000	0.000	22.500	N/A
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
Program Management Support	C/CPFF	Various : Various	0.000	0.000		2.500	Mar 2019	0.000		-		0.000	0.000	2.500	-
Subtotal			0.000	0.000		2.500		0.000		-		0.000	0.000	2.500	N/A
			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			0.000	0.000		25.000		0.000		-		0.000	0.000	25.000	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 0604366N / Standard Missile Improvements			Project (Number/Name) 9999 / Congressional Adds

	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024			
	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
Proj 9999																												
Sole Source Contract Award																												

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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 0604366N / <i>Standard Missile Improvements</i>	Project (Number/Name) 9999 / <i>Congressional Adds</i>	

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Proj 9999</i>				
Sole Source Contract Award	2	2019	2	2019