Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Navy	Date: March 2019
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 0604786N *I (U)Offensive Anti-Surface Warfare Weapon Dev*

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	996.273	163.843	139.261	65.419	-	65.419	40.438	24.642	0.000	0.000	0.000	1,429.876
3337: *Offensive Anti-Surface Warfare (OASuW) Weapon*	996.273	163.843	119.261	65.419	-	65.419	40.438	24.642	0.000	0.000	0.000	1,409.876
9999: *Congressional Adds*	0.000	0.000	20.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	20.000

Program MDAP/MAIS Code:
Project MDAP/MAIS Code(s): P449

A. Mission Description and Budget Item Justification

Offensive Anti-Surface Warfare (OASuW) will be an offensive weapon system that can be air, surface, and subsurface launched in the maritime battle space environment. OASuW is a vital component of the Joint Force Anti-Surface Warfare capability and incorporate new and emergent technologies to support an increased offensive strike capability. Due to emerging threats, the fleet issued an Urgent Operational Needs Statement (UONS) that identified a capability gap for a long-range anti-ship missile to be filled by 2018. Directly supporting this UONS and significantly reducing Joint Force warfighting risks, the U.S. Navy initiated OASuW Increment 1 (OASuW-1), which leverages the Defense Advanced Research Projects Agency(DARPA)/Office of Naval Research Long Range Anti-Ship Missile (LRASM) demonstration program to deliver an Early Operational Capability (EOC) in the required timeframe. LRASM fills the most urgent air-launched capability gap to complement existing ASuW weapon systems and positions the Department of Defense to address evolving surface warfare threats. LRASM is integral to realizing the National Defense Strategy of combat-credible military forces to deter war, protect the security of our nation and to enable the Joint Force to win should deterrence fail. The development and acquisition of LRASM has been structured to be fielded at a pace relevant to maintain overmatch against long-term strategic competition. Specifically, LRASM directly contributes to building a more lethal force and is a critical enabler for joint lethality in contested environments; deterring adversaries from aggression; ensuring common domains remain open and maintaining favorable regional balances of power.

The OASuW program is part of the Navy's Integrated Fire Control (IFC) approach to address advanced threat capabilities in the Anti-Access/Area-Denial (A2AD) environment. IFC solutions enable individual system capabilities to be leveraged across an effects chain, placing the full spectrum of tactical capability in the hands of the warfighter. IFC solutions that push engagement distances beyond the launch platform's radar horizon and allows the U.S. Navy to operate in, and control, contested battle space in littoral waters and A2/AD environments are increasingly critical as more and more scenarios require compressed and coordinated fire control timelines.

Budget Item Justification: OASuW-1
Funding supports the delivery of an EOC of OASuW-1 LRASM weapon system, including the transition of the LRASM demonstration design into a fielded air-launched weapon system, using an accelerated acquisition approach, with streamlined governance. The program is leveraging DoDI 5000.02i Model 4 to structure the acquisition strategy, which includes a highly integrated and concurrent transition design, integration, and developmental / operational test program to meet the EOC schedule required by the UONS. To manage the accelerated timeline and resulting concurrency, the program uses a structured Knowledge Point review process that support decisions regarding significant program events such as transition from design to integration phase and contract awards. These reviews also provide senior DoD leadership the opportunity to provide focused support and active management of technical and acquisition risk and are chaired by the Service Acquisition Executive,

Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Navy	Date: March 2019
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 0604786N *I (U)Offensive Anti-Surface Warfare Weapon Dev*

ASN(RDA). The knowledge points are similar to acquisition milestone reviews, but occur more frequently and are tailored to program-specific milestone events. Of note, the OASuW Increment I knowledge points are defined differently than GAO defines the same term and are tailored to program-specific milestone events. The program met statutory requirements associated with Milestone B at Knowledge Point 3. In addition to the Knowledge Point reviews, Executive Steering Board reviews, chaired by the MDA, are held at least monthly. Supporting these reviews, the associated engineering approach is designed to mitigate resulting risk by implementing a rolling-wave engineering progression based on the NAVAIR Systems Engineering Technical Review (SETR) process to enable detailed planning and decisions as the system matures. This process includes capstone SETR events that are tailored reviews using standard design review criteria. The Technology Maturation efforts in FY 2015 through FY 2017 culminated in a system level Critical Design Review (CDR) level review at SETR 4.0. SETR 3.0 in 4QFY 2015 provided a CDR-level review to support the Knowledge Point 3 decision to initiate the Integration and Test phase for the All Up Round components. SETR 5.0 held in 1QFY 2017 to support Knowledge Point 4 obtained MDA to enter into production. Subsequent to baseline OASuW Increment 1, the LRASM capability improvements program which was initiated in FY 2019 includes continued reviews and test events to achieve incorporation of those improvements in future production units.

This program is funded under ADVANCED COMPONENT DEVELOPMENT AND PROTOTYPES because it includes all efforts necessary to evaluate integrated technologies, representative models or prototype systems in a high fidelity and realistic operating environment.

B. Program Change Summary ($ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Previous President's Budget	160.694	143.062	51.051	-	51.051
Current President's Budget	163.843	139.261	65.419	-	65.419
Total Adjustments	3.149	-3.801	14.368	-	14.368
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-23.801			
• Congressional Rescissions	-	-			
• Congressional Adds	-	20.000			
• Congressional Directed Transfers	-	-			
• Reprogrammings	8.037	0.000			
• SBIR/STTR Transfer	-4.888	0.000			
• Program Adjustments	0.000	0.000	14.338	-	14.338
• Rate/Misc Adjustments	0.000	0.000	0.030	-	0.030

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2018	FY 2019
Project: 9999: *Congressional Adds*		
Congressional Add: *Operational Test Requirements for Additional Capabilities*	0.000	20.000
Congressional Add Subtotals for Project: 9999	0.000	20.000
Congressional Add Totals for all Projects	0.000	20.000

Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Navy	Date: March 2019
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 0604786N *I (U)Offensive Anti-Surface Warfare Weapon Dev*

Change Summary Explanation

Baseline planned OASuW Increment 1 development ramped down in FY 2019. LRASM capability improvements initiated in FY 2019 are planned to continue in FY 2020 through FY 2022 to ensure tactical dominance for the warfighter over a longer period of time by providing sanctuary employment against capital warships. The additional funding supports development of capability enhancements to include range increase, improved communication capabilities, increased survivability and associated testing for LRASM to incorporate into future production units.

Exhibit R-2A, RDT&E Project Justification: PB 2020 Navy											Date: March 2019	
Appropriation/Budget Activity 1319 / 4					R-1 Program Element (Number/Name) PE 0604786N / *(U)Offensive Anti-Surface Warfare Weapon Dev*				Project (Number/Name) 3337 / *Offensive Anti-Surface Warfare (OASuW) Weapon*			
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**
3337: *Offensive Anti-Surface Warfare (OASuW) Weapon*	996.273	163.843	119.261	65.419	-	65.419	40.438	24.642	0.000	0.000	0.000	1,409.876
Quantity of RDT&E Articles	13	-	-	-	-	-	-	-	-	-		

Project MDAP/MAIS Code: P449

A. Mission Description and Budget Item Justification

Offensive Anti-Surface Warfare (OASuW) will be an offensive weapon system that can be air, surface, and subsurface launched in the maritime battle space environment. OASuW is a vital component of the Joint Force Anti-Surface Warfare capability and incorporate new and emergent technologies to support an increased offensive strike capability. Due to emerging threats, the fleet issued an Urgent Operational Needs Statement (UONS) that identified a capability gap for a long-range anti-ship missile to be filled by 2018. Directly supporting this UONS and significantly reducing Joint Force warfighting risks, the U.S. Navy initiated OASuW Increment 1 (OASuW-1), which leverages the Defense Advanced Research Projects Agency(DARPA)/Office of Naval Research Long Range Anti-Ship Missile (LRASM) demonstration program to deliver an Early Operational Capability (EOC) in the required timeframe. LRASM fills the most urgent air-launched capability gap to complement existing ASuW weapon systems and positions the Department of Defense to address evolving surface warfare threats. LRASM is integral to realizing the National Defense Strategy of combat-credible military forces to deter war, protect the security of our nation and to enable the Joint Force to win should deterrence fail. The development and acquisition of LRASM has been structured to be fielded at a pace relevant to maintain overmatch against long-term strategic competition. Specifically, LRASM directly contributes to building a more lethal force and is a critical enabler for joint lethality in contested environments; deterring adversaries from aggression; ensuring common domains remain open and maintaining favorable regional balances of power.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	**FY 2018**	**FY 2019**	**FY 2020 Base**	**FY 2020 OCO**	**FY 2020 Total**
Title: OASuW Development Program	163.843	119.261	65.419	0.000	65.419
Articles:	-	-	-	-	-
FY 2019 Plans: The Integration and Test phase of the program will continue in FY 2019. The program will complete Knowledge Point 7 in support of the Lot 3 procurement. USN EOC will be achieved on the F/A-18 (SETR 8.0) with Knowledge Point 8. Continued OASuW Increment 1 development (LRASM capability improvements) added to ensure tactical dominance for the warfighter over a longer period of time by providing sanctuary employment against capital warships. This continued development expands the mission set to address evolving, persistent and dynamic threats and continues to fill gaps in strike warfare.					
FY 2020 Base Plans: The Integration and Test phase of the program will continue in FY 2020 for the Long Range Anti-Shape Missile (LRASM) capability improvements efforts. Baseline OASuW Increment 1 development ramped down in FY					

Exhibit R-2A, RDT&E Project Justification: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0604786N / *(U)Offensive Anti-Surface Warfare Weapon Dev*	**Project (Number/Name)** 3337 / *Offensive Anti-Surface Warfare (OASuW) Weapon*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
2019, however continued development for LRASM capability improvements is programmed to ensure tactical dominance for the warfighter over a longer period of time by providing sanctuary employment against capital warships. This continued development expands the mission set to address evolving, persistent and dynamic threats and continues to fill gaps in strike warfare. The development and follow-on test efforts added include range increase, improved communication capabilities, and increased survivability. These expanded mission set efforts will integrate into future Lot procurements. ***FY 2020 OCO Plans:*** N/A ***FY 2019 to FY 2020 Increase/Decrease Statement:*** Decreasing due to progression in developmental efforts.					
Accomplishments/Planned Programs Subtotals	163.843	119.261	65.419	0.000	65.419

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/2291: *LRASM*	107.733	111.190	143.200	-	143.200	143.999	143.999	143.999	143.999	0.000	995.062
• MPAF/8010: *LRASM*	61.728	54.385	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	187.524

Remarks

U.S. Navy WP,N funding supports the following quantities:

FY17 - 15 (FY17 funding procures 14 Lot 1 units and 1 unit that is priced at and part of the Lot 2 procurement)
FY18 - 34 (Lot 2)
FY19 - 35 (Lot 3)
FY20 - 48 (Lot 4)
FY21 - 48 (Lot 5)
FY22 - 48 (Lot 6)
FY23 - 48 (Lot 7)
FY24 - 48 (Lot 8)

U.S. Air Force MP,AF funding supports the following quantities:

Exhibit R-2A, RDT&E Project Justification: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0604786N / *(U)Offensive Anti-Surface Warfare Weapon Dev*	**Project (Number/Name)** 3337 / *Offensive Anti-Surface Warfare (OASuW) Weapon*

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
FY17 - 19 (Lot 1)											
FY18 - 16 (1 unit is priced at and part of FY 2017 Lot 1 procurement to achieve 20 total Air Force units in Lot 1; 15 units are with the FY 2018 Lot 2 procurement)											
FY19 - 15 (Lot 3)											

D. Acquisition Strategy

OASuW-1 is using an accelerated acquisition approach, with streamlined governance to transition the DARPA/ONR-demonstrated Long Range Anti-Ship Missile (LRASM) for use as an air-launched weapon from USAF and USN platforms. LRASM is integral to realizing the National Defense Strategy of combat-credible military forces to deter war, protect the security of our nation and to enable the Joint Force to win should deterrence fail. The development and acquisition of LRASM has been structured to be fielded at a pace relevant to maintain overmatch against long-term strategic competition. Specifically, LRASM supports greater performance of the acquisition system and is demonstrating the delivery of performance at the speed of relevance; organizational structure that supports innovation with a rapid approach that dramatically decreases the timeline from development to fielding. The program is leveraging DoDI 5000.02i Model 4 to structure the acquisition strategy, which includes a highly integrated and concurrent transition design, integration, and developmental / operational test program which successfully met the Early Operation Capability (EOC) fielding schedule required by an Urgent Operational Need Statement (UONS) issued by the fleet. The program is structured in three phases: Technology Maturation, Integration and Test, and Procurement. To manage the accelerated timeline and resulting concurrency, the program uses a structured Knowledge Point review process that support decisions regarding significant program events such as transition from design to integration phase and contract awards. These reviews also provide senior DoD leadership the opportunity to provide focused support and active management of technical and acquisition risk and are chaired by the Service Acquisition Executive, ASN(RDA) (delegated MDA), and the Deputy Director of DARPA. The knowledge points are similar to acquisition milestone reviews, but occur more frequently. Of note, the OASuW-1 knowledge points are defined differently than GAO defines the same term. Knowledge Point 1 supported program initiation and approval of the acquisition strategy ; Knowledge Point 2 supported evaluation of the preliminary design of the weapon system as well as release of the Request for Proposal for the Integration and Test phase; Knowledge Point 3 supported evaluation of the final (critical design review level) weapon system design and initiation of/contract award for the Integration and Test phase; Knowledge Point 4 supports the procurement decision for Lot 1 EOC units; and Knowledge Point 5 supports Lot 2 procurement, Knowledge Point 6 supports USAF EOC decision, Knowledge Point 7 supports Lot 3 procurement and Knowledge Point 8 supports USN EOC decision. The program met the statutory requirements associated with Milestone B at Knowledge Point 3. In addition to the Knowledge Point reviews, Executive Steering Board reviews (also chaired by the MDA) are held at least monthly. Supporting these reviews, the associated engineering approach is designed to mitigate resulting risk by implementing a rolling-wave engineering progression based on the NAVAIR Systems Engineering Technical Review (SETR) process to enable detailed planning and decisions as the system matures. This process includes capstone SETR events that are tailored reviews using standard design review criteria. SETR 1.0 in FY 2014 provided a Systems Requirements Review. SETR 2.0 in FY 2015 provided a Preliminary Design Review level review of the system and supported Knowledge Point 2. SETR 3.0 in late 2015 provided a Critical Design Review (CDR) level review of the All Up Round in support of Knowledge Point 3, while SETR 4.0 in FY 2016 provided a CDR level review of the entire weapon system in support of Knowledge Point 4 in early FY 2017, along with flight test information. The LRASM capability improvements program, which was initiated in FY 2019, includes continued reviews and test events to achieve incorporation of those improvements on future production units.

Exhibit R-2A, RDT&E Project Justification: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0604786N / *(U)Offensive Anti-Surface Warfare Weapon Dev*	**Project (Number/Name)** 3337 / *Offensive Anti-Surface Warfare (OASuW) Weapon*

E. Performance Metrics

The Knowledge Points are defined reviews with the Executive Steering Board comprised of Service Acquisition Executive, ASN(RDA) (delegated MDA) and the Deputy Director of DARPA to make program decisions at key points in the program life cycle in place of milestone reviews, but tailored to support the accelerated process. The acquisition program baseline was established at Knowledge Point 3.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Navy			Date: March 2019
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0604786N / *(U)Offensive Anti-Surface Warfare Weapon Dev*	**Project (Number/Name)** 3337 / *Offensive Anti-Surface Warfare (OASuW) Weapon*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Product Development	C/CPIF	Lockheed Martin Missile and Fire Control : Orlando, FL	732.978	113.819	Oct 2017	71.251	Oct 2018	42.066	Oct 2019	-		42.066	21.950	982.064	978.393
Product Development	C/CPFF	Boeing : St. Louis, MO	59.863	0.676	Mar 2018	0.964	Mar 2019	0.630	Mar 2020	-		0.630	0.680	62.813	62.813
		Subtotal	792.841	114.495		72.215		42.696		-		42.696	22.630	1,044.877	N/A

Remarks

Lockheed Martin Company (LMCO) costs includes all integration and test efforts, including the increase for LRASM capability improvements development initiated in FY 2019 by LMCO and associated sub-contractors to complete Knowledge Points 7 and 8 and the tailored qualification/flight test program. Software development tests on F/A-18 E/F and Systems Engineering Technical Review (SETR) 8.0 (USN EOC Readiness Review). FY 2020 primarily includes product development for LRASM capability improvements.

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Government Support	WR	NAWC AD : Patuxent River,MD	6.770	1.807	Nov 2017	1.413	Nov 2018	1.245	Nov 2019	-		1.245	2.650	13.885	-
Government Support	WR	NAWC WD : China Lake, CA	39.547	11.142	Nov 2017	10.555	Nov 2018	2.640	Nov 2019	-		2.640	4.250	68.134	-
Government Support	WR	NSWC : Various	3.398	0.092	Nov 2017	0.189	Nov 2018	0.065	Nov 2019	-		0.065	0.000	3.744	-
Government Support	WR	NSA : Ft. Meade, MD	0.000	0.000		0.250	Dec 2018	0.000		-		0.000	0.000	0.250	-
Development Support	C/FFP	NSMA : Washington, DC	17.552	5.435	Dec 2017	8.676	Dec 2018	1.015	Nov 2019	-		1.015	2.100	34.778	32.864
Development Support	MIPR	USAF : Various	0.971	0.190	Oct 2017	0.040	Feb 2019	0.000		-		0.000	0.000	1.201	-
Integrated Logistics Support	WR	NAWC AD : Patuxent River, MD	0.505	0.058	Nov 2017	0.031	Nov 2018	0.020	Nov 2019	-		0.020	0.000	0.614	-
Integrated Logistics Support	WR	NAWC AD : Lakehurst, NJ	0.411	0.560	Dec 2017	0.000		0.000		-		0.000	0.000	0.971	-
Contractor Support	C/CPFF	JHU/APL : Laurel, MD	11.831	0.425	Jul 2018	0.480	Jul 2019	0.500	Jul 2020	-		0.500	1.000	14.236	14.236

Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0604786N / *(U)Offensive Anti-Surface Warfare Weapon Dev*	**Project (Number/Name)** 3337 / *Offensive Anti-Surface Warfare (OASuW) Weapon*

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Contractor Support	C/FFP	Schafer Corporation : Arlington, VA	18.371	2.373	Jun 2018	2.736	Jun 2019	3.140	Jun 2020	-		3.140	3.200	29.820	32.377
Mission Planning Support	C/CPFF	Northrup Grumman : Bethpage, NY	9.588	0.400	Oct 2017	0.969	Oct 2018	0.000		-		0.000	0.000	10.957	11.088
Contractor Support	Various	Various : Various	8.118	0.717	Oct 2017	0.730	Oct 2018	0.743	Oct 2019	-		0.743	1.650	11.958	-
Development Support	Various	NRL : Various	1.576	0.575	Nov 2017	0.228	Nov 2018	0.250	Nov 2019	-		0.250	0.000	2.629	-
Contractor Support	C/FFP	Engility : Patuxent River, MD	0.000	0.936	Jun 2018	1.051	Jun 2019	1.100	Jun 2020	-		1.100	2.419	5.506	6.506
Prior Yr Supp no longer funded in the FYDP	Various	Various : Various	2.800	0.000		0.000		0.000		-		0.000	0.000	2.800	-
		Subtotal	121.438	24.710		27.348		10.718		-		10.718	17.269	201.483	N/A

Remarks

Support costs consist of support from Government offices and Contractor Support experts associated with threat analysis, CONOPs, and Training and Tactical assessments in support of Knowledge Points 7 and 8, the integrated test program and Quick Reaction Assessment (QRA), and tactics development supporting USN EOC. FY 2020 includes continued support for the development efforts for LRASM capability improvements.

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Development Support	WR	NAWC WD : China Lake, CA	34.150	16.126	Nov 2017	12.174	Nov 2018	6.455	Nov 2019	-		6.455	13.531	82.436	-
Development Support	WR	NAWC AD : Patuxent River, MD	24.203	5.334	Nov 2017	4.357	Nov 2018	2.608	Nov 2019	-		2.608	3.750	40.252	-
Development Support	WR	NSWC : Various	0.341	0.000		0.000		0.000		-		0.000	0.000	0.341	-
Development Support	WR	COTF : Norfolk, VA	0.207	0.015	Sep 2018	0.182	Sep 2019	0.182	Sep 2020	-		0.182	2.200	2.786	-
Development Support	MIPR	USAF : Various	5.302	0.517	Oct 2017	0.077	Oct 2018	0.475	Oct 2019	-		0.475	0.650	7.021	-
Contractor Eng Support	C/CPFF	NAVSUP : Port Hueneme, CA	0.000	0.075	Apr 2018	0.000		0.075	Apr 2020	-		0.075	0.000	0.150	-
Wind Tunnel Testing	MIPR	AEDC : Arnolds AFB, TN	4.153	0.000		0.000		0.000		-		0.000	0.000	4.153	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Navy			Date: March 2019
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0604786N / *(U)Offensive Anti-Surface Warfare Weapon Dev*	Project (Number/Name) 3337 / *Offensive Anti-Surface Warfare (OASuW) Weapon*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	68.356	22.067		16.790		9.795		-		9.795	20.131	137.139	N/A

Remarks

Test and Evaluation costs support flight testing, system qualifications, range time, and target costs needed for the F/A-18 E/F to support Knowledge Points 7 and 8, the integrated DT/OT test program and Quick Reaction Assessment (QRA). FY 2020 includes LRASM capability improvements testing.

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Government Support	WR	NAWC AD : Patuxent River, MD	6.934	1.754	Nov 2017	1.839	Nov 2018	1.100	Nov 2019	-		1.100	2.850	14.477	-
Government Support	WR	NAWC WD : China Lake, CA	3.879	0.677	Nov 2017	0.924	Nov 2018	0.960	Nov 2019	-		0.960	1.800	8.240	-
Project Management Support	C/CPFF	NAWC AD : Patuxent River, MD	1.600	0.000		0.000		0.000		-		0.000	0.000	1.600	1.600
Travel	Various	NAWC AD : Patuxent River, MD	1.225	0.140	Nov 2017	0.145	Oct 2018	0.150	Oct 2019	-		0.150	0.400	2.060	-
		Subtotal	13.638	2.571		2.908		2.210		-		2.210	5.050	26.377	N/A

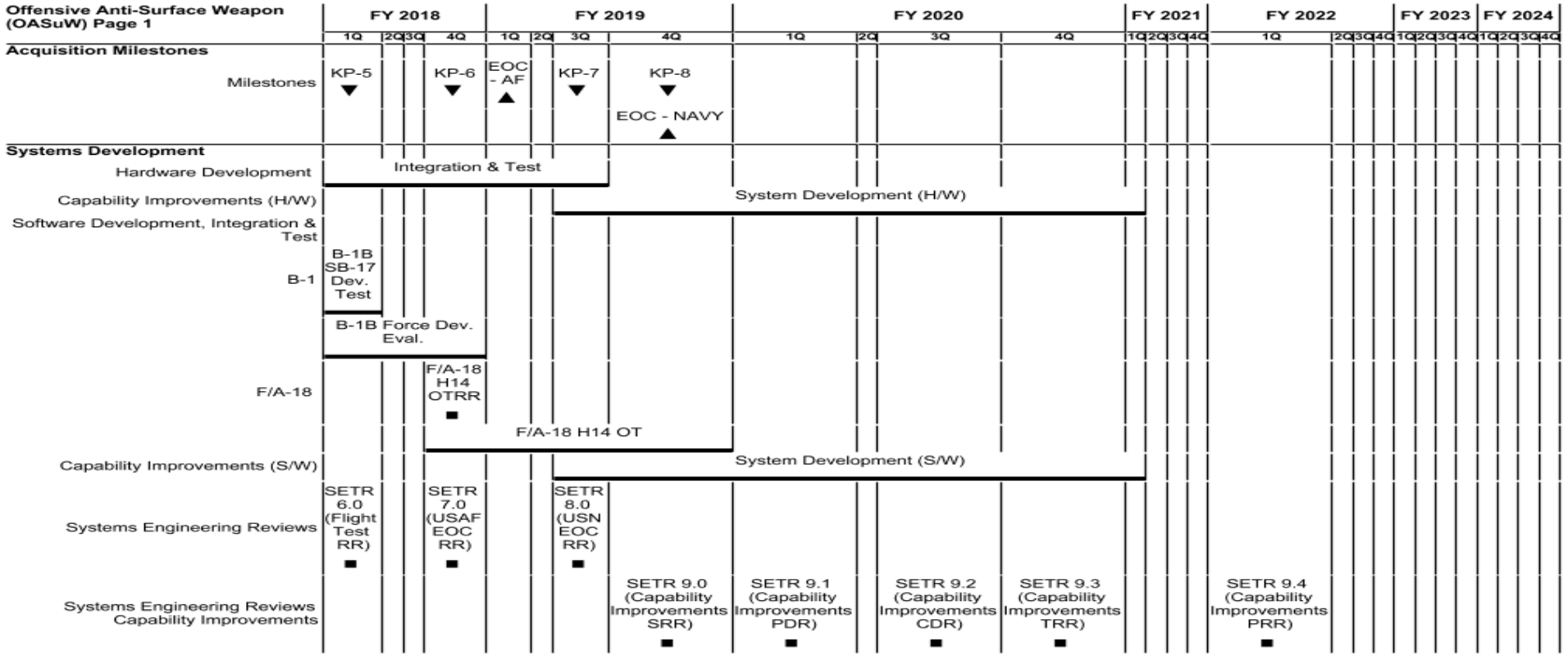
Remarks

Management Services costs consist of Non-Headquarters Program Office Management team (Government labor and Contractor support services) required for the management of the program. FY 2020 continues management services to support the LRASM capability improvements.

	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	996.273	163.843		119.261		65.419		-		65.419	65.080	1,409.876	N/A

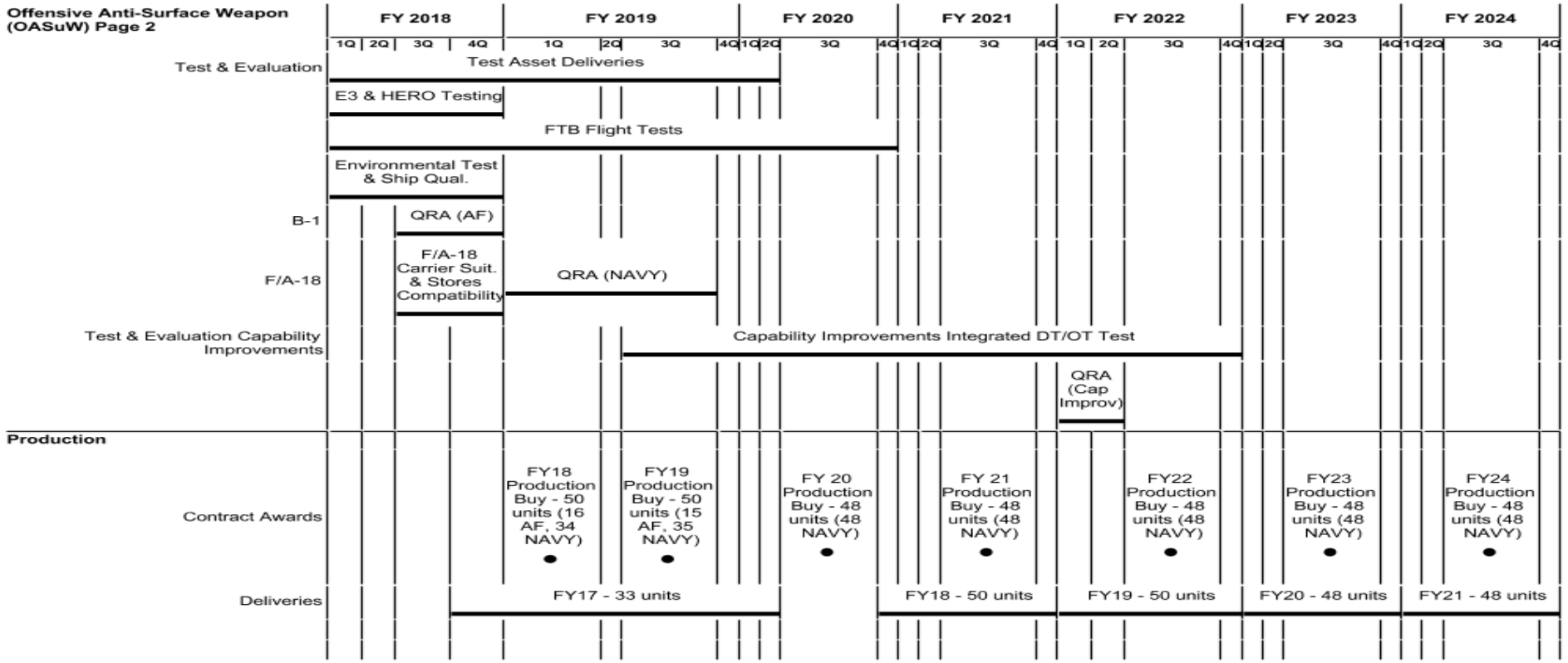
Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0604786N / *(U)Offensive Anti-Surface Warfare Weapon Dev*	**Project (Number/Name)** 3337 / *Offensive Anti-Surface Warfare (OASuW) Weapon*



2020PB - 0604786N - 3337

Exhibit R-4, RDT&E Schedule Profile: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0604786N / *(U)Offensive Anti-Surface Warfare Weapon Dev*	**Project (Number/Name)** 3337 / *Offensive Anti-Surface Warfare (OASuW) Weapon*



2020PB - 0604786N - 3337

Exhibit R-4A, RDT&E Schedule Details: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0604786N / *(U)Offensive Anti-Surface Warfare Weapon Dev*	**Project (Number/Name)** 3337 / *Offensive Anti-Surface Warfare (OASuW) Weapon*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Offensive Anti-Surface Weapon (OASuW) Page 1				
Acquisition Milestones: Milestones: Knowledge Point 5	1	2018	1	2018
Acquisition Milestones: Milestones: Knowledge Point 6	4	2018	4	2018
Acquisition Milestones: Milestones: Knowledge Point 7	3	2019	3	2019
Acquisition Milestones: Milestones: Knowledge Point 8	4	2019	4	2019
Acquisition Milestones: Milestones: Early Operational Capability (EOC) Air Force	1	2019	1	2019
Acquisition Milestones: Milestones: Early Operational Capability (EOC) Navy	4	2019	4	2019
Systems Development: Hardware Development: Integration & Test	1	2018	3	2019
Systems Development: Capability Improvements (H/W): Capability Improvements (H/W)	3	2019	1	2021
Systems Development: B-1: B-1 SB-17 Software Development Test	1	2018	1	2018
Systems Development: B-1: B-1 Force Development Evaluation	1	2018	4	2018
Systems Development: F/A-18: F/A-18 H14 Operational Test Readiness Review	4	2018	4	2018
Systems Development: F/A-18: F/A-18 H14 Operational Test	4	2018	4	2019
Systems Development: Capability Improvements (S/W): Capability Improvements (S/W)	3	2019	1	2021
Systems Development: Systems Engineering Reviews: System Engineering Technical Review 6.0 (Flight Test Readiness Review)	1	2018	1	2018
Systems Development: Systems Engineering Reviews: System Engineering Technical Review 7.0 (USAF EOC Readiness Review)	4	2018	4	2018
Systems Development: Systems Engineering Reviews: System Engineering Technical Review 8.0 (USN EOC Readiness Review)	3	2019	3	2019

Exhibit R-4A, RDT&E Schedule Details: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0604786N / *(U)Offensive Anti-Surface Warfare Weapon Dev*	**Project (Number/Name)** 3337 / *Offensive Anti-Surface Warfare (OASuW) Weapon*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Systems Development: Systems Engineering Reviews Capability Improvements: System Engineering Technical Review 9.0 (Capability Improvements System Requirements Review)	4	2019	4	2019
Systems Development: Systems Engineering Reviews Capability Improvements: System Engineering Technical Review 9.1 (Capability Improvements Preliminary Design Review)	1	2020	1	2020
Systems Development: Systems Engineering Reviews Capability Improvements: System Engineering Technical Review 9.2 (Capability Improvements Critical Design Review)	3	2020	3	2020
Systems Development: Systems Engineering Reviews Capability Improvements: System Engineering Technical Review 9.3 (Capability Improvements Test Readiness Review)	4	2020	4	2020
Systems Development: Systems Engineering Reviews Capability Improvements: System Engineering Technical Review 9.4 (Capability Improvements Production Readiness Review)	1	2022	1	2022
Offensive Anti-Surface Weapon (OASuW) Page 2				
Test & Evaluation: Test Asset Deliveries	1	2018	2	2020
Test & Evaluation: E3 & HERO Testing	1	2018	4	2018
Test & Evaluation: FTB Flight Tests	1	2018	4	2020
Test & Evaluation: Environmental Test & Ship Qualification	1	2018	4	2018
B-1: Quick Reaction Assessment Testing (AF)	3	2018	4	2018
F/A-18: Quick Reaction Assessment Testing (Navy)	1	2019	3	2019
F/A-18: F/A-18 Carrier Suitability & Stores Compatibility	3	2018	4	2018
Test & Evaluation Capability Improvements: Capability Improvements	3	2019	4	2022
Test & Evaluation Capability Improvements: Capability Improvement QRA	1	2022	2	2022
Production: Contract Awards: FY18 Production Buy - 50 units (16 AF, 34 NAVY)	1	2019	1	2019
Production: Contract Awards: FY19 Production Buy - 50 units (15 AF, 35 NAVY)	3	2019	3	2019
Production: Contract Awards: FY20 Production Buy - 48 units (48 NAVY)	3	2020	3	2020

Exhibit R-4A, RDT&E Schedule Details: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0604786N / *(U)Offensive Anti-Surface Warfare Weapon Dev*	**Project (Number/Name)** 3337 / *Offensive Anti-Surface Warfare (OASuW) Weapon*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Production: Contract Awards: FY21 Production Buy - 48 units (48 NAVY)	3	2021	3	2021
Production: Contract Awards: FY22 Production Buy - 48 units (48 NAVY)	3	2022	3	2022
Production: Contract Awards: FY23 Production Buy - 48 units (48 NAVY)	3	2023	3	2023
Production: Contract Awards: FY24 Production Buy - 48 units (48 NAVY)	3	2024	3	2024
Production: Deliveries: FY17 Deliveries - 33 units	4	2018	2	2020
Production: Deliveries: FY18 Deliveries - 50 units	4	2020	4	2021
Production: Deliveries: FY19 Deliveries - 50 units	1	2022	4	2022
Production: Deliveries: FY20 Deliveries - 48 units	1	2023	4	2023
Production: Deliveries: FY21 Deliveries - 48 units	1	2024	4	2024

Exhibit R-2A, RDT&E Project Justification: PB 2020 Navy			Date: March 2019
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0604786N / *(U)Offensive Anti-Surface Warfare Weapon Dev*	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	20.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	20.000
Quantity of RDT&E Articles		-	3	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Offensive Anti-Surface Warfare (OASuW) will be an offensive weapon system that can be air, surface, and subsurface launched in the maritime battle space environment. OASuW is a vital component of the Joint Force Anti-Surface Warfare capability and incorporate new and emergent technologies to support an increased offensive strike capability. Due to emerging threats, the fleet issued an Urgent Operational Needs Statement (UONS) that identified a capability gap for a long-range anti-ship missile to be filled by 2018. Directly supporting this UONS and significantly reducing Joint Force warfighting risks, the U.S. Navy initiated OASuW Increment 1 (OASuW-1), which leverages the Defense Advanced Research Projects Agency(DARPA)/Office of Naval Research Long Range Anti-Ship Missile (LRASM) demonstration program to deliver an Early Operational Capability (EOC) in the required timeframe. LRASM fills the most urgent air-launched capability gap to complement existing ASuW weapon systems and positions the Department of Defense to address evolving surface warfare threats. LRASM is integral to realizing the National Defense Strategy of combat-credible military forces to deter war, protect the security of our nation and to enable the Joint Force to win should deterrence fail. The development and acquisition of LRASM has been structured to be fielded at a pace relevant to maintain overmatch against long-term strategic competition. Specifically, LRASM directly contributes to building a more lethal force and is a critical enabler for joint lethality in contested environments; deterring adversaries from aggression; ensuring common domains remain open and maintaining favorable regional balances of power.

Budget Item Justification: Operational Test (OT) requirements for additional capabilities
Funding in this project unit is for OASuW Increment I / LRASM capability improvements OT requirements.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2018	FY 2019
Congressional Add: Operational Test Requirements for Additional Capabilities	0.000	20.000
FY 2018 Accomplishments: N/A		
FY 2019 Plans: N/A		
Congressional Adds Subtotals	0.000	20.000

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0604786N / *(U)Offensive Anti-Surface Warfare Weapon Dev*	**Project (Number/Name)** 9999 / *Congressional Adds*

D. Acquisition Strategy

OASuW-1 is using an accelerated acquisition approach, with streamlined governance to transition the DARPA/ONR-demonstrated Long Range Anti-Ship Missile (LRASM) for use as an air-launched weapon from USAF and USN platforms. LRASM is integral to realizing the National Defense Strategy of combat-credible military forces to deter war, protect the security of our nation and to enable the Joint Force to win should deterrence fail. The development and acquisition of LRASM has been structured to be fielded at a pace relevant to maintain overmatch against long-term strategic competition. Specifically, LRASM supports greater performance of the acquisition system and is demonstrating the delivery of performance at the speed of relevance; organizational structure that supports innovation with a rapid approach that dramatically decreases the timeline from development to fielding. The program is leveraging DoDI 5000.02i Model 4 to structure the acquisition strategy, which includes a highly integrated and concurrent transition design, integration, and developmental / operational test which successfully met the Early Operation Capability (EOC) fielding schedule required by an Urgent Operational Need Statement (UONS) issued by the fleet. The program is structured in three phases: Technology Maturation, Integration and Test, and Procurement. To manage the accelerated timeline and resulting concurrency, the program uses a structured Knowledge Point review process that support decisions regarding significant program events such as transition from design to integration phase and contract awards. These reviews also provide senior DoD leadership the opportunity to provide focused support and active management of technical and acquisition risk and are chaired by the Service Acquisition Executive, ASN(RDA) (delegated MDA), and the Deputy Director of DARPA. The knowledge points are similar to acquisition milestone reviews, but occur more frequently. Of note, the OASuW-1 knowledge points are defined differently than GAO defines the same term. Knowledge Point 1 supported program initiation and approval of the acquisition strategy ; Knowledge Point 2 supported evaluation of the preliminary design of the weapon system as well as release of the Request for Proposal for the Integration and Test phase; Knowledge Point 3 supported evaluation of the final (critical design review level) weapon system design and initiation of/ contract award for the Integration and Test phase; Knowledge Point 4 supports the procurement decision for Lot 1 EOC units; and Knowledge Point 5 supports Lot 2 procurement, Knowledge Point 6 supports USAF EOC decision, Knowledge Point 7 supports Lot 3 procurement and Knowledge Point 8 supports USN EOC decision. The program met the statutory requirements associated with Milestone B at Knowledge Point 3. In addition to the Knowledge Point reviews, Executive Steering Board reviews (also chaired by the MDA) are held at least monthly. Supporting these reviews, the associated engineering approach is designed to mitigate resulting risk by implementing a rolling-wave engineering progression based on the NAVAIR Systems Engineering Technical Review (SETR) process to enable detailed planning and decisions as the system matures. This process includes capstone SETR events that are tailored reviews using standard design review criteria. SETR 1.0 in FY 2014 provided a Systems Requirements Review. SETR 2.0 in FY 2015 provided a Preliminary Design Review level review of the system and supported Knowledge Point 2. SETR 3.0 in late 2015 provided a Critical Design Review (CDR) level review of the All Up Round in support of Knowledge Point 3, while SETR 4.0 in FY 2016 provided a CDR level review of the entire weapon system in support of Knowledge Point 4 in early FY 2017, along with flight test information. The LRASM capability improvements program which was initiated in FY 2019 includes continued reviews and test events to achieve incorporation of those improvements in future production units.

E. Performance Metrics

The Knowledge Points are defined reviews with the Executive Steering Board comprised of Service Acquisition Executive, ASN(RDA) (delegated MDA) and the Deputy Director of DARPA to make program decisions at key points in the program life cycle in place of milestone reviews, but tailored to support the accelerated process. The acquisition program baseline was established at Knowledge Point 3.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Navy			Date: March 2019
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0604786N / *(U)Offensive Anti-Surface Warfare Weapon Dev*	Project (Number/Name) 9999 / *Congressional Adds*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Development Support (OT)	C/CPIF	Lockheed Martin Missile and Fire Control : Orlando, FL	0.000	0.000		19.925	Apr 2019	0.000		-		0.000	0.000	19.925	-
Contractor Eng Support (OT)	C/CPFF	NAVSUP : Port Hueneme, CA	0.000	0.000		0.075	Apr 2019	0.000		-		0.000	0.000	0.075	-
		Subtotal	0.000	0.000		20.000		0.000		-		0.000	0.000	20.000	N/A

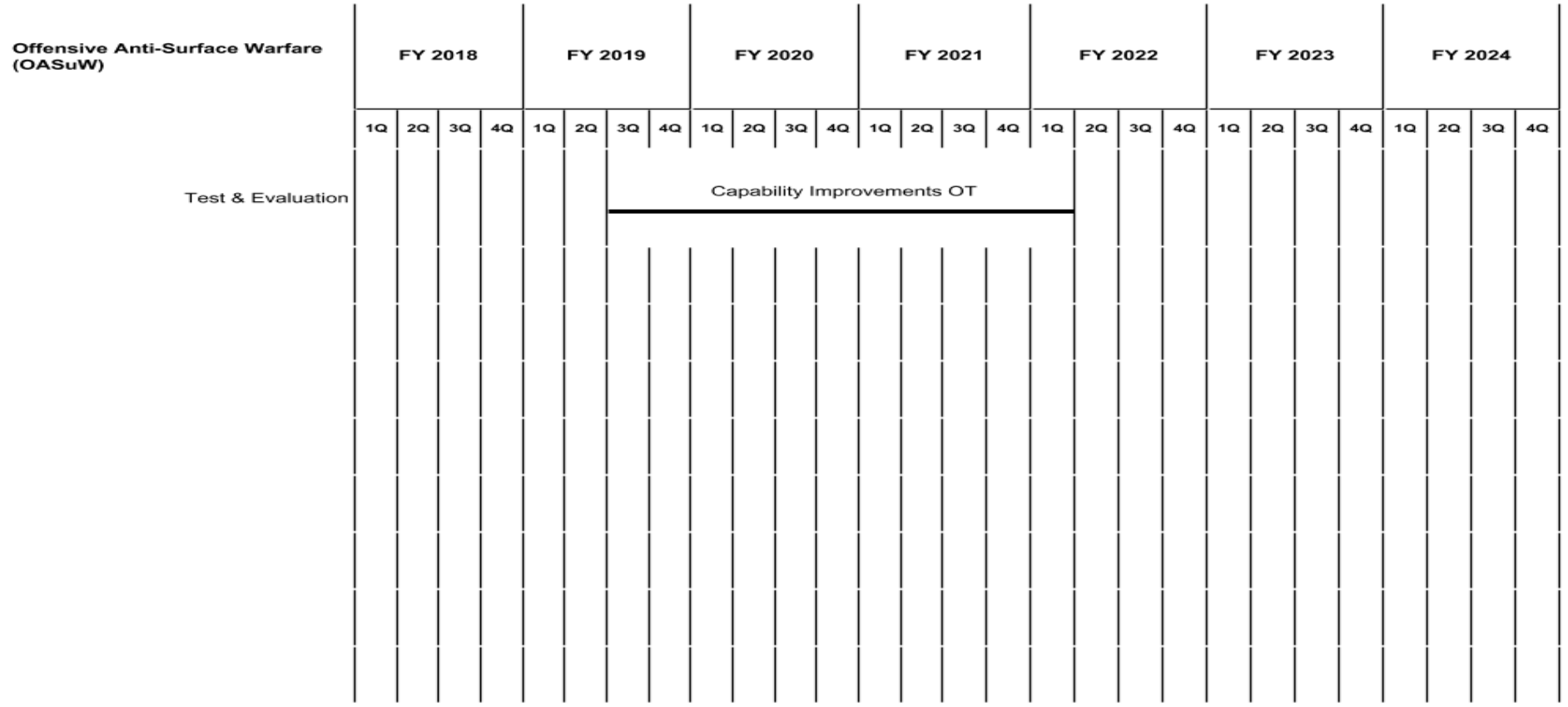
Remarks

FY 2019 Congressional direction for $20M to be utilized for Offensive Anti-Surface Warfare (OASuW) Increment I / Long Range Anti-Ship Missile (LRASM) to fund operational test requirements for additional capabilities.

	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		20.000		0.000		-		0.000	0.000	20.000	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0604786N / *(U)Offensive Anti-Surface Warfare Weapon Dev*	**Project (Number/Name)** 9999 / *Congressional Adds*



2020PB - 0604786N - 9999

Exhibit R-4A, RDT&E Schedule Details: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0604786N / *(U)Offensive Anti-Surface Warfare Weapon Dev*	**Project (Number/Name)** 9999 / *Congressional Adds*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Offensive Anti-Surface Warfare (OASuW)				
Test & Evaluation: Operational Testing (OT)	3	2019	1	2022