Exhibit R-2, RDT&E Budget Item Justification: PB 2021 Navy											Date: February 2020	
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 7: *Operational Systems Development*					R-1 Program Element (Number/Name) PE 0305220N *I MQ-4C Triton*							
COST ($ in Millions)	**Prior Years**	**FY 2019**	**FY 2020**	**FY 2021 Base**	**FY 2021 OCO**	**FY 2021 Total**	**FY 2022**	**FY 2023**	**FY 2024**	**FY 2025**	**Cost To Complete**	**Total Cost**
Total Program Element	3,490.244	13.395	11.784	11.120	-	11.120	13.751	14.820	14.598	14.891	0.000	3,584.603
4020: *MQ-4C TRITON*	3,490.244	13.395	11.784	11.120	-	11.120	13.751	14.820	14.598	14.891	0.000	3,584.603
Program MDAP/MAIS Code: **Project MDAP/MAIS Code(s):** 373												

Note

MQ-4C Triton RDT&E funding for modernization was segregated into a new program element (from PE 0305220N to PE 0305421N) in order to satisfy Congressional direction for increased transparency.

A. Mission Description and Budget Item Justification

MQ-4C Triton Unmanned Air System (UAS). The popular name Triton was approved for the MQ-4C UAS in June 2012, designating the RQ-4 Broad Area Maritime Surveillance UAS as the MQ-4C Triton.

The MQ-4C Triton is a high altitude-long endurance UAS designed to provide Fleet and combatant commanders with persistent maritime Intelligence, Surveillance and Reconnaissance (ISR) of nearly all the world's high-density sea-lanes, littorals, and areas of national interest. Teamed with its manned-capability counterpart, the P-8A, Triton will be a key component of the Navy's family of systems to achieve maritime domain awareness. MQ-4C Triton will seek to leverage Maritime Patrol and Reconnaissance Force manpower, training and maintenance efficiencies.

The MQ-4C Triton features sensors designed to provide near worldwide coverage through a network of five orbits inside and outside continental United States, with sufficient air vehicles to remain airborne for 24 hours a day, 7 days a week, out to ranges of 2,000 nautical miles. Onboard sensors will provide detection, classification, tracking and identification of maritime targets and include maritime radar, electro-optical/infra-red and Electronic Support Measures systems. Additionally, the MQ-4C will have a communications relay capability designed to link dispersed forces in the theater of operations and serve as a node in the Navy's networked strategy. Tactical-level data analysis will occur in real-time at shore-based mission control sites connected to the air vehicle via satellite communications. Further intelligence exploitation can be conducted at Fleet shore-based sites or aboard aircraft carriers and other ships.

The MQ-4C Triton UAS will implement phased capability upgrades within the ongoing acquisition program to pace capability with rapidly evolving technologies and threats to ensure the Navy maintains persistent ISR dominance through the system's lifecycle, and to support the Maritime Intelligence, Surveillance, Reconnaissance and Targeting (MISR&T) transition plan. System upgrades will include Multi-Intelligence capabilities, Counter Electronic Attack upgrades, a more robust electronic support capability, and continued improvements to baseline mission system payloads.

The MQ-4C air vehicle, mission control system, specialized sensors, and communications suite will play a significant role in achieving the Navy's strategic vision for the 21st century. The Triton system as a persistence ISR enabler provides the supported combatant commander and fleet commander with unparalleled situational awareness of the maritime battle space to develop and sustain the common operational tactical picture. The system will also serve as a Fleet response plan enabler

Exhibit R-2, RDT&E Budget Item Justification: PB 2021 Navy	Date: February 2020
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0305220N *I MQ-4C Triton*

with a persistent, global force offering to provide critical trip wire information for intelligence preparation of the environment. Triton will connect to both the Global Information Grid and the Distributed Common Ground System-Navy information backbone to provide the Warfighter with unprecedented levels of battlespace awareness to synchronize actions necessary to maintain maritime Full Spectrum Superiority.

JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under OPERATIONAL SYSTEMS DEVELOPMENT because it includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate funding in the current or subsequent fiscal year.

B. Program Change Summary ($ in Millions)	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Previous President's Budget	14.395	11.784	11.375	-	11.375
Current President's Budget	13.395	11.784	11.120	-	11.120
Total Adjustments	-1.000	0.000	-0.255	-	-0.255
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-0.999	0.000			
• SBIR/STTR Transfer	-0.001	0.000			
• Program Adjustments	0.000	0.000	-0.208	-	-0.208
• Rate/Misc Adjustments	0.000	0.000	-0.047	-	-0.047

Change Summary Explanation

FY 2020 to FY 2021 funding decrease aligns to phased development efforts associated with the MQ-4C Triton Airframe Fatigue Testing and Analysis. FY 2021 funding supports the continuation of Fatigue Testing and Analysis.

Schedule:
Baseline Early Operational Capability (EOC) moved 3 Quarters to 2nd Quarter FY 2020 to provide additional opportunities for fleet familiarization prior to an OCONUS deployment.
Low Rate Initial Production (LRIP) Lots 1 and 2 updated to reflect actual aircraft deliveries and LRIP Lots 3 through 5 updated to reflect expected aircraft deliveries.
LRIP 2 aircraft B12 delivery moved 11 Quarters to 1st Quarter FY 2023 and aligns with the programmatic decision to incorporate a Multi-INT production cut-in and avert a FY 2024 retrofit.

Exhibit R-2A, RDT&E Project Justification: PB 2021 Navy			Date: February 2020
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0305220N / *MQ-4C Triton*	Project (Number/Name) 4020 / *MQ-4C TRITON*	

COST ($ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
4020: *MQ-4C TRITON*	3,490.244	13.395	11.784	11.120	-	11.120	13.751	14.820	14.598	14.891	0.000	3,584.603
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Project MDAP/MAIS Code: 373

A. Mission Description and Budget Item Justification

MQ-4C Triton Unmanned Air System (UAS). The MQ-4C Triton is a high altitude-long endurance UAS designed to provide Fleet and combatant commanders with persistent maritime Intelligence, Surveillance and Reconnaissance (ISR) of nearly all the world's high-density sea-lanes, littorals, and areas of national interest. Teamed with its manned-capability counterpart, the P-8A, Triton will be a key component of the Navy's family of systems to achieve maritime domain awareness. MQ-4C Triton will seek to leverage Maritime Patrol and Reconnaissance Force manpower, training and maintenance efficiencies.

The MQ-4C Triton features sensors designed to provide near worldwide coverage through a network of five orbits inside and outside continental United States, with sufficient air vehicles to remain airborne for 24 hours a day, 7 days a week, out to ranges of 2,000 nautical miles. Onboard sensors will provide detection, classification, tracking and identification of maritime targets and include maritime radar, electro-optical/infra-red and Electronic Support Measures systems. Additionally, the MQ-4C will have a communications relay capability designed to link dispersed forces in the theater of operations and serve as a node in the Navy's networked strategy. Tactical-level data analysis will occur in real-time at shore-based mission control sites connected to the air vehicle via satellite communications. Further intelligence exploitation can be conducted at Fleet shore-based sites or aboard aircraft carriers and other ships.

The MQ-4C Triton UAS will implement phased capability upgrades within the ongoing acquisition program to pace capability with rapidly evolving technologies and threats to ensure the Navy maintains persistent ISR dominance through the system's lifecycle, and to support the Maritime Intelligence, Surveillance, Reconnaissance and Targeting (MISR&T) transition plan. System upgrades will include Multi-Intelligence capabilities, Counter Electronic Attack upgrades, a more robust electronic support capability and continue improvements to baseline mission system payloads.

The MQ-4C air vehicle, mission control system, specialized sensors, and communications suite will play a significant role in achieving the Navy's strategic vision for the 21st century. The Triton system as a persistence ISR enabler provides the supported combatant commander and fleet commander with unparalleled situational awareness of the maritime battle space to develop and sustain the common operational tactical picture. The system will also serve as a Fleet response plan enabler with a persistent, global force offering to provide critical trip wire information for intelligence preparation of the environment. Triton will connect to both the Global Information Grid and the Distributed Common Ground System-Navy information backbone to provide the Warfighter with unprecedented levels of battlespace awareness to synchronize actions necessary to maintain maritime Full Spectrum Superiority.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Title: Product Development	12.699	11.181	10.773	0.000	10.773
Articles:	-	-	-	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2021 Navy		Date: February 2020
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0305220N / *MQ-4C Triton*	**Project (Number/Name)** 4020 / *MQ-4C TRITON*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Description: Awarded contract in FY 2008 to initiate the MQ-4C Triton System Development and Demonstration (SDD) phase effort. The Prime Contractor is responsible for overall system development and performance, as well as associated management, engineering and logistics activities. ***FY 2020 Plans:*** Efforts within this PE continue on airframe fatigue testing and analysis. ***FY 2021 Base Plans:*** Efforts within this PE continue on airframe fatigue testing and analysis. ***FY 2021 OCO Plans:*** N/A ***FY 2020 to FY 2021 Increase/Decrease Statement:*** Decrease of $0.408 million from FY 2020 to FY 2021 reflects program rephase of Aviation RDT&E from FY21/22 to FY23.					
Title: ILS, Support, Studies & Analysis	0.305	0.305	0.305	0.000	0.305
Articles:	-	-	-	-	-
Description: Integrated Logistics Support, Studies and Analysis. ***FY 2020 Plans:*** Continue integrated logistics support, logistics supportability analyses and environmental planning, and development of technical data to support fielding of the MQ-4C Triton UAS capabilities. ***FY 2021 Base Plans:*** Continue integrated logistics support, logistics supportability analyses and environmental planning, and development of technical data to support fielding of the MQ-4C Triton UAS capabilities. ***FY 2021 OCO Plans:*** N/A					
Title: Test & Evaluation (T&E)	0.373	0.280	0.024	0.000	0.024
Articles:	-	-	-	-	-
Description: T&E efforts. ***FY 2020 Plans:***					

Exhibit R-2A, RDT&E Project Justification: PB 2021 Navy		Date: February 2020
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0305220N / *MQ-4C Triton*	**Project (Number/Name)** 4020 / *MQ-4C TRITON*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Continue Developmental Test support of MQ-4C Triton fatigue testing. ***FY 2021 Base Plans:*** Continue Developmental Test support of MQ-4C Triton fatigue testing. ***FY 2021 OCO Plans:*** N/A ***FY 2020 to FY 2021 Increase/Decrease Statement:*** Decrease of $0.256 million from FY 2020 to FY 2021 aligns to the planned completion of Baseline test requirements.					
Title: Program Management (PM) ***Articles:*** ***Description:*** PM support and travel. ***FY 2020 Plans:*** Continue the following: PM support and travel, development of milestone and acquisition-related documentation, capability refinement and open systems architecture development, resource justification, affordability assessments and cost analyses, risk reduction and risk management, system integration and interoperability planning, technology maturity reviews, program protection planning, corrosion prevention planning, and joint and international cooperation efforts. ***FY 2021 Base Plans:*** Continue the following: PM support and travel, development of milestone and acquisition-related documentation, capability refinement and open systems architecture development, resource justification, affordability assessments and cost analyses, risk reduction and risk management, system integration and interoperability planning, technology maturity reviews, program protection planning, corrosion prevention planning, and joint and international cooperation efforts. ***FY 2021 OCO Plans:***	0.018 -	0.018 -	0.018 -	0.000 -	0.018 -

Exhibit R-2A, RDT&E Project Justification: PB 2021 Navy		Date: February 2020
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0305220N / *MQ-4C Triton*	**Project (Number/Name)** 4020 / *MQ-4C TRITON*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
N/A					
Accomplishments/Planned Programs Subtotals	13.395	11.784	11.120	0.000	11.120

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
• RDTEN/0305421N: *RQ-4 Modernization*	218.366	185.446	178.799	-	178.799	198.466	200.488	174.357	157.676	39.700	1,871.916
• APN/0442: *MQ-4 Triton*	596.283	478.288	186.676	-	186.676	95.654	549.539	604.024	736.586	6,541.561	11,352.414
• APN/0605/J0442: *Spares and Repair Parts*	65.819	171.874	3.227	-	3.227	6.122	0.000	0.000	0.000	0.000	561.499
• APN/0596: *MQ-4 Series*	53.278	27.994	12.998	-	12.998	0.000	94.533	73.294	95.446	249.617	620.422
• OMN/1D4D: *Weapons Maintenance*	19.316	23.747	26.802	-	26.802	31.607	43.489	44.059	44.558	Continuing	Continuing

Remarks

D. Acquisition Strategy

The MQ-4C Triton acquisition approach supports the Navy's Maritime Intelligence, Surveillance, Reconnaissance, and Targeting (MISR&T) Transition Plan by providing a stable and effective baseline early operational capability (EOC) in 2020 to facilitate Fleet introduction and learning while continuing System Development and Demonstration engineering and integrated test on Signals Intelligence (SIGINT) and other upgrades to deliver a Multi-INT configuration at Initial Operational Capability (IOC). Phased capability upgrades will continue post IOC to enable the MQ-4C Triton to keep pace with rapidly evolving technologies and threats, and address correction of deficiencies and obsolescence issues to ensure the Navy maintains persistent Intelligence, Surveillance and Reconnaissance dominance through the system's lifecycle.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Navy		Date: February 2020
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0305220N / *MQ-4C Triton*	**Project (Number/Name)** 4020 / *MQ-4C TRITON*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2019 Cost	FY 2019 Award Date	FY 2020 Cost	FY 2020 Award Date	FY 2021 Base Cost	FY 2021 Base Award Date	FY 2021 OCO Cost	FY 2021 OCO Award Date	FY 2021 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Primary Hardware Development	C/CPIF	Northrop Grumman : Rancho Bernardo, CA	2,843.243	9.663	Nov 2018	9.723	Nov 2019	10.473	Nov 2020	-		10.473	53.901	2,927.003	2,927.003
Systems Engineering	Various	Various : Various	19.041	1.600	Mar 2019	0.000		0.000		-		0.000	0.000	20.641	-
Systems Engineering	WR	NAWC-AD : Patuxent River, MD	244.324	1.436	Nov 2018	1.458	Nov 2019	0.300	Nov 2020	-		0.300	2.885	250.403	-
Systems Engineering	WR	NAWC-WD : China Lake, CA	13.418	0.000		0.000		0.000		-		0.000	0.000	13.418	-
Contractor Engineering	C/CPFF	Mitre : Mclean, VA	4.044	0.000		0.000		0.000		-		0.000	0.000	4.044	4.044
Prior Year Prod Dev no longer in the FYDP	Various	Various : Various	24.553	0.000		0.000		0.000		-		0.000	0.000	24.553	-
		Subtotal	3,148.623	12.699		11.181		10.773		-		10.773	56.786	3,240.062	N/A

Remarks

The Primary Hardware Development line resources Northrop Grumman for prime contractor activities, which include System Development and Demonstration (SDD) and System Demonstration Test Article (SDTA) vehicles and Fatigue Testing.

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2019 Cost	FY 2019 Award Date	FY 2020 Cost	FY 2020 Award Date	FY 2021 Base Cost	FY 2021 Base Award Date	FY 2021 OCO Cost	FY 2021 OCO Award Date	FY 2021 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Development Support	Various	Various : Various	21.552	0.000		0.000		0.000		-		0.000	0.000	21.552	-
Integrated Logistics Support	Various	Various : Various	21.325	0.005	Nov 2018	0.005	Nov 2019	0.025	Nov 2020	-		0.025	0.020	21.380	-
Integrated Logistics Support	WR	NAWC-AD : Patuxent River, MD	54.659	0.300	Nov 2018	0.300	Nov 2019	0.280	Nov 2020	-		0.280	1.200	56.739	-
Prior year cost no longer funded in the FYDP	Various	Various : Various	10.784	0.000		0.000		0.000		-		0.000	0.000	10.784	-
		Subtotal	108.320	0.305		0.305		0.305		-		0.305	1.220	110.455	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Navy			Date: February 2020
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0305220N / *MQ-4C Triton*	Project (Number/Name) 4020 / *MQ-4C TRITON*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2019 Cost	FY 2019 Award Date	FY 2020 Cost	FY 2020 Award Date	FY 2021 Base Cost	FY 2021 Base Award Date	FY 2021 OCO Cost	FY 2021 OCO Award Date	FY 2021 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	Various	Various : Various	20.370	0.000		0.000		0.000		-		0.000	0.000	20.370	-
Developmental Test & Evaluation	WR	NAWC-AD : Patuxent River, MD	160.983	0.373	Nov 2018	0.280	Nov 2019	0.024	Nov 2020	-		0.024	0.000	161.660	-
Operational Test & Evaluation	Various	Various : Various	4.133	0.000		0.000		0.000		-		0.000	0.000	4.133	-
Developmental Test & Evaluation (SATCOMM)	MIPR	DITCO : Various	11.184	0.000		0.000		0.000		-		0.000	0.000	11.184	-
		Subtotal	196.670	0.373		0.280		0.024		-		0.024	0.000	197.347	N/A

Management Services ($ in Millions)

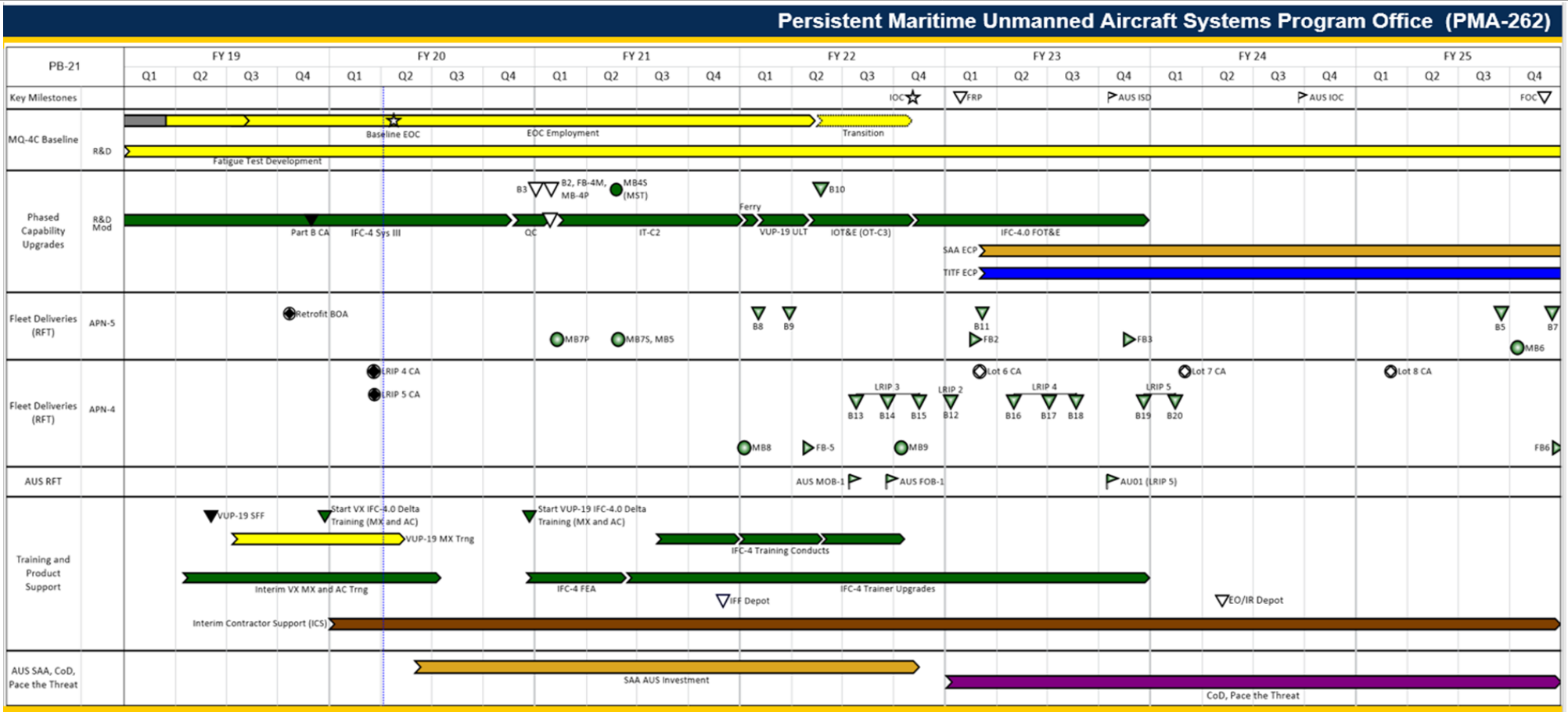
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2019 Cost	FY 2019 Award Date	FY 2020 Cost	FY 2020 Award Date	FY 2021 Base Cost	FY 2021 Base Award Date	FY 2021 OCO Cost	FY 2021 OCO Award Date	FY 2021 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management	Various	Various : Various	3.507	0.000		0.000		0.000		-		0.000	0.000	3.507	-
Travel	Allot	Various : Various	1.792	0.018	Nov 2018	0.018	Nov 2019	0.018	Nov 2020	-		0.018	0.054	1.900	-
Program Management Support	C/CPFF	Ausley : Lexington Park, MD	26.324	0.000		0.000		0.000		-		0.000	0.000	26.324	26.324
Prior year cost no longer funded in the FYDP	Various	Various : Various	5.008	0.000		0.000		0.000		-		0.000	0.000	5.008	-
		Subtotal	36.631	0.018		0.018		0.018		-		0.018	0.054	36.739	N/A

	Prior Years	FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	3,490.244	13.395		11.784		11.120		-		11.120	58.060	3,584.603	N/A

Remarks

Prior to FY 2010, MQ-4C Triton, formerly known as RQ-4 Broad Area Maritime Surveillance (BAMS), was budgeted for in PE 0305205N: Endurance Unmanned Aer Veh.

Exhibit R-4, RDT&E Schedule Profile: PB 2021 Navy		Date: February 2020
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0305220N / *MQ-4C Triton*	**Project (Number/Name)** 4020 / *MQ-4C TRITON*



Note: Low Rate Initial Production Lot 1 aircraft are conditionally accepted in IFC 3.0 configuration and retrofit to Multi-INT configuration. Low Rate Initial Production Lot 2 aircraft, excluding aircraft B12, are conditionally accepted in IFC 3.0 configuration and retrofit to Multi-INT configuration. R-4 schedule depicts Ready for Tasking aircraft delivered to the fleet vice initial government acceptance of the aircraft.

Exhibit R-4A, RDT&E Schedule Details: PB 2021 Navy		Date: February 2020
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0305220N / *MQ-4C Triton*	**Project (Number/Name)** 4020 / *MQ-4C TRITON*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 4020				
Acquisition Milestones: Full Rate Production	1	2023	1	2023
Acquisition Milestones: Initial Operational Capability	4	2022	4	2022
Acquisition Milestones: Baseline Early Operational Capability	2	2020	2	2020
System Development: Airframe Fatigue Testing and Analysis	1	2019	4	2025
System Development: Phased Capability Upgrades - Multi-INT (IFC 4.0)	1	2019	4	2023
System Development: Sense and Avoid (IFC-5.0) Development and Integration	1	2023	4	2025
System Development: Future Capability Development (Triton in the Fight)	4	2022	4	2025
Test & Evaluation Activities: Integrated Test (Combined/Developmental/Operational)	1	2019	1	2022
Test & Evaluation Activities: Multi-INT Initial Operational Test and Evaluation	2	2022	4	2022
Test & Evaluation Activities: Multi-INT Follow-On Operational Test and Evaluation	4	2022	4	2023
Production Milestones: Contracts: Low Rate Initial Production Lot 4 Contract Award	1	2020	1	2020
Production Milestones: Contracts: Low Rate Initial Production Lot 5 Contract Award	1	2020	1	2020
Production Milestones: Contracts: Production Lot 6 Contract Award	1	2023	1	2023
Production Milestones: Contracts: Production Lot 7 Contract Award	1	2024	1	2024
Production Milestones: Contracts: Production Lot 8 Contract Award	1	2025	1	2025
Production Milestones: Deliveries: Low Rate Initial Production Lot 1 Delivery	1	2019	3	2019
Production Milestones: Deliveries: Low Rate Initial Production Lot 2 Delivery	3	2019	1	2023
Production Milestones: Deliveries: Low Rate Initial Production Lot 3 Delivery	3	2022	4	2022
Production Milestones: Deliveries: Low Rate Initial Production Lot 4 Delivery	2	2023	3	2023
Production Milestones: Deliveries: Low Rate Initial Production Lot 5 Delivery	4	2023	1	2024