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Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Navy **Date:** May 2021

Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0604245M / H-1 UPGRADES
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COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
Total Program Element	53.083	59.611	57.094	50.158	-	50.158	-	-	-	-	-	-
3359: <i>H-1 Improvements</i>	53.083	59.611	57.094	50.158	-	50.158	-	-	-	-	-	-

A. Mission Description and Budget Item Justification

The mission of the AH-1 attack helicopter is to provide rotary wing close air support, anti-armor, armed escort, armed/visual reconnaissance, survivability enhancements, and fire support coordination capabilities under day/night and adverse weather conditions. The mission of the UH-1 utility helicopter is to provide command and control and combat assault support under day/night and adverse weather conditions and special operations support; supporting arms coordination and aeromedical evacuation. Major modifications for both aircraft include 37 AH-1Ws converted to AH-1Zs, build 152 new AH-1Zs, remanufacture ten (10) H-1N helicopters and build 150 new UH-1Y models. AH-1Z and UH-1Y models include a 4-bladed, composite rotor system with semi-automatic blade fold, performance-matched transmissions, T700 Engine Digital Electronic Control Units, 4-bladed tail rotors and drive systems, more effective stabilizers, upgraded landing gear, and common, fully integrated cockpits and avionics systems. These upgrades add 10,000 flight hours to AH-1Z/UH-1Y airframes. The fully integrated cockpits reduce operator workload and improve situational awareness, thus increasing safety and reducing the rate of aircraft attrition. They provide considerable growth potential for future weapon systems and avionics to significantly increase mission effectiveness and survivability. The cockpits also include integration of onboard mission planning, communications, digital fire control, self-navigation, night navigation/targeting, air-to-ground missile and air-launched intercept missile weapon systems management in nearly identical crew stations, which significantly reduces training requirements. These upgrades maximize commonality between the two aircraft and provide needed improvements in crew and passenger survivability, payload, power available, endurance, range, airspeed, maneuverability and supportability.

This budget is required for follow-on improvements to H-1 aircraft via integration of sensors and weapons, avionics, and air vehicle components that will address deficiencies, systems safety, obsolescence, readiness, reliability, supportability, and relevance in the battlespace. Improvements will include all associated System Configuration Set (SCS) updates as well as integration and testing related to the aircraft platforms.

B. Program Change Summary (\$ in Millions)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Previous President's Budget	60.991	62.310	64.587	-	64.587
Current President's Budget	59.611	57.094	50.158	-	50.158
Total Adjustments	-1.380	-5.216	-14.429	-	-14.429
• Congressional General Reductions	-	-0.866			
• Congressional Directed Reductions	-	-4.350			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-1.380	0.000			
• Program Adjustments	0.000	0.000	-13.791	-	-13.791

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• Rate/Misc Adjustments	0.000	0.000	-0.638	-	-0.638
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Change Summary Explanation

The FY 2022 funding request was reduced by \$14.429M as a result of a \$13.791M USMC Force Design Guidance reduction and \$0.638M in miscellaneous and working capital fund rate changes.

Technical: None

Schedule: None

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Exhibit R-2A, RDT&E Project Justification: PB 2022 Navy										Date: May 2021		
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0604245M / H-1 UPGRADES				Project (Number/Name) 3359 / H-1 Improvements			
COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
3359: H-1 Improvements	53.083	59.611	57.094	50.158	-	50.158	-	-	-	-	-	-
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-	-	-

A. Mission Description and Budget Item Justification

The objective of H-1 Improvements is to provide follow-on Research, Development, Test and Evaluation efforts in support of all H-1 aircraft.

Air Vehicle and Engine improvements include analysis of structural data to formulate Damage Limits and Tolerances for structural components to reduce life cycle costs and maintenance workload; and redesign of structural components and drive system components to minimize excessive and premature wear, increase reliability, and improve existing design deficiencies. Additional air vehicle upgrades include: redesign of the aircraft power-generating and electrical components (generators, inverters, wiring) to support power requirements for existing and future systems (Aircraft Survivability Equipment, emerging electronic warfare, and Degraded Visual Environment), redesign of the Environmental Control System / Thermal Redesign to support cooling of Technology Refresh Mission Computer and other avionics, redesign to add an auxiliary fuel capability, Intrepid Tiger, and upgrades the UH-1Y cabin floor panels, and redesign of circuit breaker panels to support integration of future capability improvements.

Avionics improvements target digital inter-operability, integrated avionics, safety and survivability, and situational awareness for both the pilot and aircrew safety. This includes integrating Joint Battle Command-Platform (JBC-P), Full Motion Video (FMV), Degraded Visual Environment (DVE), Helmet Mounted Display improvements, cockpit displays, precision and Global Positioning System (GPS) non-precision landing capability, Crash Survivable Flight Incident Recorder, collision avoidance, improved Embedded Global Positioning System (EGI), Inertial Navigation System (INS), targeting sensor systems and mission computer. H-1 capability improvements include improved Aircraft Survivability Equipment (ASE), digital operations and transfer of data, digital interoperability, digital video recording, video and data networking, and information integration with aviation combat elements and Marine Air Ground Task Force elements. Mandated capability efforts include - Communications, Navigation and Surveillance system/Air Traffic Management (CNS/ATM), Required Navigation Performance/ Area Navigation (RNP/RNAV), GPS Selective Availability Anti-Spoofing Module (SAASM), Automatic Dependent Surveillance - Broadcast (ADS-B), Crash Survivable Flight Incident Recorder, development efforts required for Depot standup and incorporation of technology and information protection/Information Assurance in critical avionics and sensor systems. In addition, the goal is to reduce total ownership cost for H-1 aircraft and related support systems by improving reliability and maintainability of critical flight and avionics systems along with associated peculiar avionics support equipment and incorporating fact-of-life obsolescence solutions. All avionics improvements include related System Configuration Set (SCS) development updates including software, test assets and testing.

Sensors, Weapons and Helmet Mounted Display System improvements include, manufacturing process improvements, hardware and software redesign to improve reliability, improve production methodologies, implement program security initiatives and increase the collective capability to address emerging battlefield threats. These improvements also address reliability and obsolescence, which collectively enhance Fleet readiness. The technical interface between the aircraft sensor, helmet and weapons is increasingly challenging to effectively employ advanced precision guided weapons and Aircraft Survivability Equipment (ASE) for the interface between the sensors, helmet and precision guided munitions. These systems require extensive software and hardware upgrades that translate into meaningful, sensor fusion based solutions, to provide both battlefield and situational awareness to the H1 platform. Specifically, the AN/ALQ-30 Target Sight System (TSS) will implement several block upgrade efforts with improvements to the IR Pointer, Laser and Cameras as well as adding capabilities such as Laser Spot Tracker and High Definition Video.

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The Optimized TopOwl (OTO) optics upgrades, reliability, additive manufacturing initiatives, will address multiple human factor improvements, to include Degraded Visual Environment (DVE), as well as advanced boresighting and mapping improvements to improve weapons accuracy. The Digital Interoperability of the Helmet and Sensor will extend to improvements in ASE and Smart Dispense Technologies to improve aircraft survivability. Radar and Missile Warning improvements, including APR-39D(V)2 and the Distributed Aperture Infrared Countermeasures (DAIRCM), require extensive integration and testing. Development, test and integration efforts with the Advanced Precision Kill Weapons (APKWS), M299 Launcher improvements, Digital Rocket Launcher (DRL), AIM-9X, the AN/ALQ-231 (V) Intrepid Tiger II Electronic Warfare Pod and the Joint Air-to-Ground Missile (JAGM). Improving and integrating weapon systems will align with these upgrades to improve the overall accuracy, lethality and survivability of the H-1 platform. All weapon and sensor improvements include related System Configuration Set (SCS) development updates including software, test assets, and testing.

These improvements will provide considerable growth potential for future weapon systems, air vehicle improvements, software improvements, and avionics upgrades, which will significantly increase mission effectiveness and survivability, while potentially reducing life cycle costs. The cockpits will also include integration of onboard mission planning, communications, digital fire control, self-navigation, night navigation/targeting, precision guided munitions, and air-launched intercept missile weapon systems management in nearly identical crew stations, which significantly reduce training requirements. These upgrades maximize commonality between all H-1 Type/Model/Series aircraft and provide needed improvements in crew and passenger reliability, survivability, payload, power available, endurance, range, airspeed, maneuverability and supportability.

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

	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Title: Weapons and Sensors Testing and Integration	18.510	15.298	12.795	0.000	12.795
Articles:	-	-	-	-	-
FY 2021 Plans:					
Continue prototype developmental testing of TSS Block Upgrade initiatives, to include software compatibility, transfer alignment corrections and high definition video feed to the Optimized Top Owl HMSD (Helmet Mounted Sight Display). Conduct HMSD optics testing, digital upgrades and Sensor/ASE interfaces, to include TopOwl integration of binocular optics. Continue enhanced digital capability efforts, Aircraft Survivability Equipment (ASE) improvements, Helmet Mounted Display improvements, with full visor integration and display enhancements, systems obsolescence mitigation efforts and test Degraded Visual Environment (DVE) solutions with TSS and OTO interfaces. Conduct testing and evaluation of Intrepid Tiger IT-IIV3 and Distributed Aperture Infrared Countermeasures. Weapons and Sensors improvements include test asset components to support validation and verification of designs to include software.					
FY 2022 Base Plans:					
Continue prototype developmental testing of TSS Obsolescence Upgrade initiatives, to include software compatibility, transfer alignment corrections and high definition video feed to the Optimized Top Owl HMSD (Helmet Mounted Sight Display). Conduct HMSD optics testing, digital upgrades and Sensor/ASE interfaces, to include TopOwl integration of binocular optics. Continue enhanced digital capability efforts, Aircraft Survivability Equipment (ASE) improvements, Helmet Mounted Display improvements, with full visor integration and display					

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
<p>enhancements, systems obsolescence mitigation efforts and test Degraded Visual Environment (DVE) solutions with TSS and OTO interfaces. Conduct testing and evaluation of Intrepid Tiger IT-IIV3 and Distributed Aperture Infrared Countermeasures. Weapons and Sensors improvements include test asset components to support validation and verification of designs to include software.</p> <p>FY 2022 OCO Plans: N/A</p> <p>FY 2021 to FY 2022 Increase/Decrease Statement: Decrease in funding from FY 2021 to FY 2022 due to reduced flight testing requirements for TSS Block Upgrade with OTO improvements, specifically to address Transfer Alignment for weapons employment and DVE options.</p>					
<p>Title: Air Vehicle and Engines Improvements</p> <p align="right">Articles:</p> <p>FY 2021 Plans: Continue redesign and initiate test of structural components to minimize excessive and premature wear, increase reliability, increase aircraft load capabilities, address weight and balance issues, and improve existing design deficiencies including: Tail boom evaluation, the fuel system; the aircraft electrical power-generating components, including circuit breaker panel, and aircraft re-wiring to support power requirements for existing and future systems to include stores select-ability, future Avionics Survivability Equipment (ASE), emerging Electronic Warfare (EW), and Degraded Visual Environment (DVE) systems; the Environmental Control Systems/Thermal to support other avionics on the UH-1Y/AH-1Z; the drive system components (rotor brake/slip ring/standpipe/gearboxes/drive shaft and couplers/chip detectors) to increase reliability and reduce high cost and/or failure rates; main and tail rotor blades including tail rotor mast. Continue survivability upgrades on blast frag canopy, opaque armor, self-sealing fuel tanks, sump and backing board. Continue UH-1Y structural improvements to increase capability including auxiliary fuel; cabin floor boards to prevent corrosion; floor panel access and other structural reinforcements. Initiate UH-1Y and AH-1Z structural improvements on composite elevator.</p> <p>FY 2022 Base Plans: Continue redesign and initiate test of structural components to minimize excessive and premature wear, increase reliability, increase aircraft load capabilities, address weight and balance issues, and improve existing design deficiencies including: Tail boom evaluation, the fuel system; the aircraft electrical power-generating components, including circuit breaker panel, and aircraft re-wiring to support power requirements for existing and future systems to include stores select-ability, future Avionics Survivability Equipment (ASE), emerging Electronic Warfare (EW), and Degraded Visual Environment (DVE) systems; the Environmental Control</p>	2.786	10.877	9.851	0.000	9.851
	-	-	-	-	-

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
<p>Systems/Thermal to support other avionics on the UH-1Y/AH-1Z; the drive system components (rotor brake/slip ring/standpipe/gearboxes/drive shaft and couplers/chip detectors) to increase reliability and reduce high cost and/or failure rates; main and tail rotor blades including tail rotor mast. Continue survivability upgrades on blast frag canopy, opaque armor, self-sealing fuel tanks, sump and backing board. Continue UH-1Y structural improvements to increase capability including auxiliary fuel; cabin floor boards to prevent corrosion; floor panel access and other structural reinforcements.</p> <p>FY 2022 OCO Plans: N/A</p> <p>FY 2021 to FY 2022 Increase/Decrease Statement: Decrease in funding from FY2021 to FY2022 due to decrease in design and test efforts in support of UH-1Y/AH-1Z structural improvement and reinforcement initiatives, component redesign efforts, and survivability upgrades.</p>					
<p>Title: Avionics Improvements</p> <p align="right">Articles:</p> <p>FY 2021 Plans: Continue with software integration, Development Testing (DT) and Validation and Verification (V&V) activities associated with SCS. Continue design, development and testing for Digital Interoperability (DI) improvements, to include Link 16 development, Full Motion Video, Advanced Network Waveform 2 (ANW2) UH-1Y Aft Cabin Display for situational awareness, portable tablet improvements for Marine Air-Ground Task, Advanced Data Transfer System (ADTS), and a switch and Cross Domain Solution (CDS) that support NSA security requirements for airborne networks. Develop communication solutions to enable Second Generation Anti-Jam Tactical UHF Radio for NATO (SATURN), Variable Message Format (VMF), Tactical Secure Voice 2 (TSV2) Protocol for ARC-210 RT-1939A Radio. Complete development efforts on the Mission Computer (TRMC) redesign., avionics components / systems obsolescence mitigation efforts, peculiar avionics support equipment, automatic test equipment and mission computer SCS improvements, Aircraft Dependent Surveillance Broadcast (ADS-B), and waveform functionality. Continue enhancement of digital map and data storage capabilities, digital video recording, display systems, digital systems upgrades. Initiate design and development on TAWS, Joint Battlefield Command - Platform (JBC-P), Mobile User Objective System (MUOS) for over the horizon communication, Degraded Visual Environment and collision avoidance capability, Embedded Global Positioning System/Inertial Navigation System (EGI) upgrade to meet current mandate for signal integrity technology,</p>	38.315	30.919	27.512	0.000	27.512
	-	-	-	-	-

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
GPS non-precision approach capability and GPS signal protection efforts, Crash Survivable Flight Instrument Recorder (CSFIR), and Link tactical data exchange.					
<i>FY 2022 Base Plans:</i> Continue with software integration, Development Testing (DT), Validation, and Verification (V&V) activities associated with SCS. Continue design, development and testing for Digital Interoperability (DI) improvements, to include Link 16 development, Full Motion Video, Advanced Network Waveform 2 (ANW2) UH-1Y Aft Cabin Display for situational awareness, portable tablet improvements for Marine Air-Ground Task, Advanced Data Transfer System (ADTS), and a switch and Cross Domain Solution (CDS) that support NSA security requirements for airborne networks. Develop communication solutions to enable Second Generation Anti-Jam Tactical UHF Radio for NATO (SATURN), Variable Message Format (VMF), and Tactical Secure Voice 2 (TSV2) Protocol for ARC-210 RT-1939A Radio. Complete development efforts on the Mission Computer (TRMC) redesign., avionics components / systems obsolescence mitigation efforts, peculiar avionics support equipment, automatic test equipment and mission computer SCS improvements, Aircraft Dependent Surveillance Broadcast (ADS-B), and waveform functionality. Continue enhancement of digital map and data storage capabilities, digital video recording, display systems, digital systems upgrades. Initiate design and development on TAWS, Joint Battlefield Command - Platform (JBC-P), Mobile User Objective System (MUOS) for over the horizon communication, Degraded Visual Environment and collision avoidance capability, Embedded Global Positioning System/Inertial Navigation System (EGI) upgrade to meet current mandate for signal integrity technology, GPS non-precision approach capability and GPS signal protection efforts, Crash Survivable Flight Instrument Recorder (CSFIR), and Link tactical data exchange.					
<i>FY 2022 OCO Plans:</i> N/A					
<i>FY 2021 to FY 2022 Increase/Decrease Statement:</i> Decrease in funding from FY2021 to FY2022 due to transition from development to Test and Evolution (T/E) and fielding. More emphasis on the evaluation and less funding required for SCS development.					
Accomplishments/Planned Programs Subtotals	59.611	57.094	50.158	0.000	50.158

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
• APN/0178: UH-1Y/AH-1Z APN1	35.186	3.816	0.939	-	0.939	-	-	-	-	-	-
• APN/0532: H-1 Series	122.792	134.490	124.194	-	124.194	-	-	-	-	-	-

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Exhibit R-2A, RDT&E Project Justification: PB 2022 Navy	Date: May 2021
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>FY 2022</u> <u>Base</u>	<u>FY 2022</u> <u>OCO</u>	<u>FY 2022</u> <u>Total</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
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Remarks

D. Acquisition Strategy

Follow-on H-1 Improvements will be developed using cost plus fixed fee type contracts.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Navy **Date:** May 2021

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Product Development (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Primary Hardware Development	SS/CPFF	BHTI : Amarillo, TX	12.403	0.000	Jan 2020	7.390	Jan 2021	5.493	Jan 2022	-		5.493	-	-	-
Primary Hardware Development	Various	Various : Various	0.520	0.942	Jan 2020	1.094	Jan 2021	0.784	Jan 2022	-		0.784	-	-	-
Systems Engineering	WR	NAWCAD : Patuxent River, MD	3.018	1.990	Nov 2019	0.522	Nov 2020	1.825	Nov 2021	-		1.825	-	-	-
Systems Engineering	SS/CPFF	BHTI : Amarillo, TX	0.979	8.141	Jan 2020	8.607	Jan 2021	5.998	Jan 2022	-		5.998	-	-	-
Systems Engineering	Various	Various : Various	0.258	1.154	Jan 2020	0.000		0.553	Jan 2022	-		0.553	-	-	-
Subtotal			17.178	12.227		17.613		14.653		-		14.653	-	-	N/A

Remarks
Decrease in Primary HW Development and System Engineering Support for Bell from FY2021 to FY2022 due to USMC reprioritization and reduction in fleet forces. In addition, several of the planned structural improvements to increase capability including: auxiliary fuel, cabin floor boards to prevent corrosion and floor panel access will have completed or be in final developmental and testing phases in FY2022.

Support (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Software Development	SS/FP	Northrup Grumman : Woodland Hills, CA	17.253	18.403	Nov 2019	8.781	Nov 2020	12.809	Nov 2021	-		12.809	-	-	-
Software Development	WR	NAWCWD : China Lake, CA	2.708	2.136	Nov 2019	2.094	Nov 2020	2.176	Nov 2021	-		2.176	-	-	-
Software Development	WR	NAWCAD : Patuxent River, MD	2.049	1.209	Nov 2019	1.046	Nov 2020	1.300	Nov 2021	-		1.300	-	-	-
Software Development	Various	Various : Various	0.675	1.918	Jan 2020	0.724	Jan 2021	0.974	Jan 2022	-		0.974	-	-	-
Subtotal			22.685	23.666		12.645		17.259		-		17.259	-	-	N/A

Remarks
Increase in Software Development for Northrup Grumman from FY2021 to FY2022 due to initiating Mission Computer software development efforts for the design and development for Terrain Awareness Warning System (TAWS), Joint Battlefield Command - Platform (JBC-P), GPS non-precision approach capability and GPS signal protection efforts, Crash Survivable Flight Instrument Recorder (CSFIR), and Link tactical data exchange.

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Test and Evaluation (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Operational Test and Evaluation	WR	COMOPTEVFOR : Norfolk, VA	1.431	1.316	Nov 2019	1.678	Nov 2020	1.383	Nov 2021	-		1.383	-	-	-
Operational Test and Evaluation	Various	Various : Various	1.020	0.460	Jan 2020	0.738	Jan 2021	0.760	Jan 2022	-		0.760	-	-	-
Development Test and Evaluation	WR	NAWCAD : Patuxent River, MD	7.645	18.298	Nov 2019	19.405	Nov 2020	12.611	Nov 2021	-		12.611	-	-	-
Development Test and Evaluation	Various	Various : Various	1.016	0.527	Jan 2020	0.825	Jan 2021	0.795	Jan 2022	-		0.795	-	-	-
Subtotal			11.112	20.601		22.646		15.549		-		15.549	-	-	N/A

Remarks
Decrease in Test and Evaluation from FY2021 to FY2022 due to USMC reprioritization and reduction in fleet forces. In addition, some of the planned improvements to increase capability will have completed or be in final developmental and testing phases in FY2022.

Management Services (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Contractor Engineering Support	Various	Various : Various	0.966	0.690	Nov 2019	2.083	Nov 2020	1.058	Nov 2021	-		1.058	-	-	-
Program Management Support	Various	Various : Various	0.900	2.137	Nov 2019	1.878	Nov 2020	1.403	Nov 2021	-		1.403	-	-	-
Travel	WR	NAVAIR : Patuxent River, MD	0.242	0.290	Oct 2019	0.229	Oct 2020	0.236	Oct 2021	-		0.236	-	-	-
Subtotal			2.108	3.117		4.190		2.697		-		2.697	-	-	N/A

	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract	
Project Cost Totals		53.083	59.611	57.094	50.158	-	50.158	-	-	N/A

Remarks

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Exhibit R-4A, RDT&E Schedule Details: PB 2022 Navy **Date:** May 2021

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Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>H-1 Improvements</i>				
Systems Development: Hardware/Software Development: Schedule Detail	1	2020	4	2022
Test & Evaluation: Development Test: H-1 Improvements DT	1	2020	4	2022
Test & Evaluation: Operational Test: H-1 Improvements OT	1	2020	4	2022
Deliveries: Aircraft Deliveries: Lot 14 FRP Z	1	2020	2	2020
Deliveries: Aircraft Deliveries: Lot 15 FRP Z	2	2020	2	2021
Deliveries: Aircraft Deliveries: Lot 16 FRP Z	2	2021	2	2022