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

<b>Appropriation/Budget Activity</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy / BA 5: System Development &amp; Demonstration (SDD)</i>	<b>R-1 Program Element (Number/Name)</b> PE 0604212N / <i>Other Helicopter Development</i>
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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	105.062	37.812	23.133	56.444	-	56.444	-	-	-	-	-	-
1109: <i>CH/MH-53</i>	87.561	16.254	6.801	2.868	-	2.868	-	-	-	-	-	-
3406: <i>Attack and Utility Replacement Aircraft</i>	17.501	11.904	11.332	53.576	-	53.576	-	-	-	-	-	-
9999: <i>Congressional Adds</i>	0.000	9.654	5.000	0.000	-	0.000	-	-	-	-	-	-

**A. Mission Description and Budget Item Justification**

This Program Element includes funding for the development support for improvements to current systems for CH/MH-53 and new development of Attack and Utility Replacement Aircraft (AURA) capability. The H-53 is the premier heavy lift helicopter for the Marine Corps and the only operational airborne mine sweeping platform for the Navy. H-53 RDT&E efforts focus on trade studies and risk reduction measures to identify candidate survivability, safety, avionics, cargo handling, cockpit and other airframe specific improvements to extend the service life. AURA is a Joint Department initiative to address vertical lift capability requirements and determine feasible and affordable solutions in support of the Joint Warfighter.

**B. Program Change Summary (\$ in Millions)**

	<u>FY 2020</u>	<u>FY 2021</u>	<u>FY 2022 Base</u>	<u>FY 2022 OCO</u>	<u>FY 2022 Total</u>
Previous President's Budget	38.835	18.133	85.020	-	85.020
Current President's Budget	37.812	23.133	56.444	-	56.444
Total Adjustments	-1.023	5.000	-28.576	-	-28.576
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	5.000			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-1.023	0.000			
• Program Adjustments	0.000	0.000	-27.725	-	-27.725
• Rate/Misc Adjustments	0.000	0.000	-0.851	-	-0.851

**Congressional Add Details (\$ in Millions, and Includes General Reductions)**

**Project:** 9999: *Congressional Adds*

Congressional Add: *Attack and utility helicopter replacement*

Congressional Add: *CH-53E Health Usage Monitoring System*

FY 2020	FY 2021
9.654	0.000
0.000	5.000

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2022 Navy	<b>Date:</b> May 2021
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<b>Appropriation/Budget Activity</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy / BA 5: System Development &amp; Demonstration (SDD)</i>	<b>R-1 Program Element (Number/Name)</b> PE 0604212N / <i>Other Helicopter Development</i>
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**Congressional Add Details (\$ in Millions, and Includes General Reductions)**

	FY 2020	FY 2021
Congressional Add Subtotals for Project: 9999	9.654	5.000
Congressional Add Totals for all Projects	9.654	5.000

**Change Summary Explanation**

Cost/Technical/Schedule:

1109: FY 2022 budget request was reduced by \$0.661M since the FY 2021 President's Budget submission to account for the availability of prior year execution balances and \$0.120M for miscellaneous rate adjustments.

3406 Attack and Utility Replacement Aircraft:

Cost: FY 2022 reduction of \$27.795M since the FY 2021 President's Budget Submission is associated with USMC Force Design guidance (\$27.064M), Navy Working Capital Fund rate adjustments(\$0.117M), and Rate Adjustments (\$0.614M).

Schedule: Request For Proposal (RFP) Decision, Technology and Risk Reduction (TMRR), and Modular Open Systems Approach (MOSA) Other Transaction Authority (OTA) shifted due to the recent Force Design effort conducted by the USMC.

University Affiliated Research Center (UARC) Studies were extended to accommodate increased scope to address reliability and maintainability aspects of the study.

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

<b>Appropriation/Budget Activity</b> 1319 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604212N / Other Helicopter Development	<b>Project (Number/Name)</b> 1109 / CH/MH-53
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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
1109: CH/MH-53	87.561	16.254	6.801	2.868	-	2.868	-	-	-	-	-	-
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-	-	-

**A. Mission Description and Budget Item Justification**

The H-53 helicopter is the premier heavy lift helicopter for the Marine Corps and the only operational airborne mine sweeping platform for the Navy. H-53 efforts will continue to develop and qualify components, prior to production and approval decisions, in order to replace obsolete system components. Emphasis will be placed on supportability improvement modifications that will sustain the H-53 aircraft until the transition of the H-53K is complete. These efforts combined, will significantly improve the readiness of the H-53 fleet while reducing long term operational and supportability costs. Survivability efforts to address improved situational awareness to pilots will include improved Digital Interoperability and improve Degraded Visual Environment Awareness. Modeling and simulation will be used to the maximum practical extent throughout this effort. Manned Flight Simulator will be utilized to develop, install and test interim modifications to existing H-53 legacy avionics, while maintaining the original basic system footprint and functionality. As a part of this effort, a complete Electro Magnetic Vulnerability assessment will be required for the affected and/or modified systems.

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

	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
<b>Title:</b> H-53 Avionics	4.960	2.550	1.347	0.000	1.347
<b>Articles:</b>	-	-	-	-	-
<b>FY 2021 Plans:</b>					
Continue to integrate software applications for cockpit and avionics improvements, to include the development of new sensors. Develop flight control computer and test set design modifications to address anticipated obsolescence issues. Conduct Business Case Analyses to determine impact of high Operation and Support cost drivers and address alternatives to mitigate identified issues. Development and Integration of improved Degraded Visual Environmental/Low Speed Precision Control Awareness to include coupled flight control capability.					
<b>FY 2022 Base Plans:</b>					
Continue to integrate software applications for cockpit and avionics improvements, to include the development of new sensors. Develop flight control computer and test set design modifications to address anticipated obsolescence issues. Conduct Business Case Analyses to determine impact of high Operation and Support cost drivers and address alternatives to mitigate identified issues. Investigate solutions for improved Degraded Visual Environmental to include coupled flight control capability.					
<b>FY 2022 OCO Plans:</b>					

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2022 Navy		<b>Date:</b> May 2021
<b>Appropriation/Budget Activity</b> 1319 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604212N / <i>Other Helicopter Development</i>	<b>Project (Number/Name)</b> 1109 / CH/MH-53

<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	<b>FY 2020</b>	<b>FY 2021</b>	<b>FY 2022 Base</b>	<b>FY 2022 OCO</b>	<b>FY 2022 Total</b>
N/A					
<p><b><i>FY 2021 to FY 2022 Increase/Decrease Statement:</i></b> Decrease of \$1.203 million from FY 2021 to FY 2022 is driven by the decreased R&amp;D funding required for Degrade Visual Environment/Low Speed Precision Control, as well as for the availability of prior year execution balances.</p>					
<p><b><i>Title:</i></b> H-53 Survivability</p> <p align="right"><b><i>Articles:</i></b></p> <p><b><i>FY 2021 Plans:</i></b> Continue to perform trade studies, risk reduction, design, development, model, integration and test activities for H-53 safety and survivability to include increased situational awareness via digital interoperability/Low Speed Precision Control.</p> <p><b><i>FY 2022 Base Plans:</i></b> Continue to perform trade studies, risk reduction, design, development, model, integration and test activities for H-53 safety and survivability to include increased situational awareness via digital interoperability.</p> <p><b><i>FY 2022 OCO Plans:</i></b> N/A</p> <p><b><i>FY 2021 to FY 2022 Increase/Decrease Statement:</i></b> Decrease of \$0.597 million from FY 2021 to FY 2022 is driven by decreased modeling, integration and test activities associated with Low Speed Precision Control, as well as driven by the availability of prior year execution balances.</p>	2.013	1.569	0.972	0.000	0.972
	-	-	-	-	-
<p><b><i>Title:</i></b> H-53 Propulsion</p> <p align="right"><b><i>Articles:</i></b></p> <p><b><i>FY 2021 Plans:</i></b> Continue to conduct Business Case Analyses to determine impact of high Operation and Support Propulsion cost drivers. Develop, manufacture and test the new production T-64 fuel control prototype to improve safety, operability, reliability, while eliminating obsolescence issues.</p> <p><b><i>FY 2022 Base Plans:</i></b> N/A</p> <p><b><i>FY 2022 OCO Plans:</i></b></p>	0.413	0.413	0.000	0.000	0.000
	-	-	-	-	-

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2022 Navy				<b>Date:</b> May 2021	
<b>Appropriation/Budget Activity</b> 1319 / 5		<b>R-1 Program Element (Number/Name)</b> PE 0604212N / <i>Other Helicopter Development</i>		<b>Project (Number/Name)</b> 1109 / CH/MH-53	
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>					
N/A					
<b>FY 2021 to FY 2022 Increase/Decrease Statement:</b> Decrease in cost of \$0.413 million from FY 2021 to FY 2022 is driven by decreased R&D activities associated with development of the T-64 fuel control.					
<b>Title:</b> Project Management Support					
<b>Articles:</b>					
<b>FY 2021 Plans:</b> Continue to provide in-house, field activity, and contractor support of IPTs to allow for studies and analyses, preparation of acquisition documentation and examination of equipment and avionics for the H-53. Efforts include, but are not limited to, government development support, engineering support, product management support, system engineering and logistics support, and travel for the H-53 program.					
<b>FY 2022 Base Plans:</b> Continue to provide in-house, field activity, and contractor support of IPTs to allow for studies and analyses, preparation of acquisition documentation and examination of equipment and avionics for the H-53. Efforts include, but are not limited to, government development support, engineering support, product management support, system engineering and logistics support, and travel for the H-53 program.					
<b>FY 2022 OCO Plans:</b> N/A					
<b>FY 2021 to FY 2022 Increase/Decrease Statement:</b> Decrease of \$0.325M is driven by an overall decrease in H-53E R&D activities as evidenced in the RDT&E TOA.					
<b>Title:</b> H-53 Airframe					
<b>Articles:</b>					
<b>FY 2021 Plans:</b> Continue to develop software tool to support aircraft diagnostics, health monitoring and Fatigue Life Estimating (FLE) which will interface with Naval Enterprise Logistics Support Systems. The systems will provide a seamless environment for processing data, troubleshooting and documenting the technical updates required for the H-53 airframe. Continue to develop tools to study/analyze and qualify components, prior to production and approval decisions, in order to replace obsolete system components. Perform trade studies, risk reduction, design,					

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2022 Navy		<b>Date:</b> May 2021
<b>Appropriation/Budget Activity</b> 1319 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604212N / <i>Other Helicopter Development</i>	<b>Project (Number/Name)</b> 1109 / CH/MH-53

<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	<b>FY 2020</b>	<b>FY 2021</b>	<b>FY 2022 Base</b>	<b>FY 2022 OCO</b>	<b>FY 2022 Total</b>
development, integration and test activities for the H-53 airframe to include, but not limited to, main rotor head, cowlings, aircraft structure, drive train, and various dynamic components.  <b>FY 2022 Base Plans:</b> N/A <b>FY 2022 OCO Plans:</b> N/A <b>FY 2021 to FY 2022 Increase/Decrease Statement:</b> The decrease in cost of \$0.846 from FY 2021 to FY 2022 is comprised of declining R&D activities associated with Integrated Vehicle Health Monitoring Unit (IVHMU) as procurement activities commence in FY 2021.					
<b>Title:</b> APR-39D(V)2  <b>FY 2021 Plans:</b> Completion of APR-39D(V)2 prototype development to consolidate digital interoperability and improve the probability of detection against radar guided threats. Corrects deficiencies from previous receiver by enabling self protection from radar guided threats on the battlefield.  <b>FY 2022 Base Plans:</b> N/A <b>FY 2022 OCO Plans:</b> N/A <b>FY 2021 to FY 2022 Increase/Decrease Statement:</b> Decrease of \$0.549 million from FY 2021 to FY 2022 is driven by completion of APR-39D(V)2 prototype.	6.019	0.549	0.000	0.000	0.000
<b>Articles:</b>	-	-	-	-	-
<b>Accomplishments/Planned Programs Subtotals</b>	16.254	6.801	2.868	0.000	2.868

<b>C. Other Program Funding Summary (\$ in Millions)</b>										
<b>Line Item</b>	<b>FY 2020</b>	<b>FY 2021</b>	<b>FY 2022 Base</b>	<b>FY 2022 OCO</b>	<b>FY 2022 Total</b>	<b>FY 2023</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>Cost To Complete Total Cost</b>
• APN/0528: <i>H-53 Series</i>	47.825	59.325	84.445	-	84.445	-	-	-	-	-

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2022 Navy		<b>Date:</b> May 2021
<b>Appropriation/Budget Activity</b> 1319 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604212N / <i>Other Helicopter Development</i>	<b>Project (Number/Name)</b> 1109 / <i>CH/MH-53</i>

**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**

APN-5 funding profile does not include funding designated for the CH-53K aircraft (OSIP 007-19).

**D. Acquisition Strategy**

This is a non-ACAT program. H-53 RDT&E efforts will focus on trade studies and risk reduction measures to identify candidate survivability, interoperability, safety, avionics, cargo handling, cockpit and other airframe specific improvements to extend the service life.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Navy												Date: May 2021			
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)							
1319 / 5				PE 0604212N / Other Helicopter Development				1109 / CH/MH-53							
<b>Product Development (\$ in Millions)</b>				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Systems Engineering	WR	NAWC AD : Patuxent River, MD	7.779	1.518	Nov 2019	0.821	Nov 2020	0.398	Nov 2021	-		0.398	-	-	-
Systems Engineering Contract	C/CPFF	Various : Various	2.300	1.191	Feb 2020	0.670	Feb 2021	0.320	Feb 2022	-		0.320	-	-	-
Systems Engineering	WR	Various : Various	2.853	1.953	Nov 2019	0.835	Nov 2020	0.146	Nov 2021	-		0.146	-	-	-
Design and Development	WR	Various : Various	4.953	1.323	Mar 2020	0.242	Mar 2021	0.097	Mar 2022	-		0.097	-	-	-
Prior Year Prod Dev no longer funded in the FYDP	TBD	TBD : TBD	19.475	0.000		0.000		0.000		-		0.000	-	-	-
<b>Subtotal</b>			37.360	5.985		2.568		0.961		-		0.961	-	-	N/A
<b>Support (\$ in Millions)</b>				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Software Development	Various	Various : Various	13.831	4.865	Mar 2020	1.170	Mar 2021	0.100	Mar 2022	-		0.100	-	-	-
GFE	Various	NAWC AD : Patuxent River, MD	3.861	0.280	Nov 2019	0.280	Nov 2020	0.100	Nov 2021	-		0.100	-	-	-
<b>Subtotal</b>			17.692	5.145		1.450		0.200		-		0.200	-	-	N/A
<b>Test and Evaluation (\$ in Millions)</b>				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	Various	Various : Various	14.809	2.420	Mar 2020	1.375	Mar 2021	1.307	Mar 2022	-		1.307	-	-	-
<b>Subtotal</b>			14.809	2.420		1.375		1.307		-		1.307	-	-	N/A



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

<b>Appropriation/Budget Activity</b> 1319 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604212N / <i>Other Helicopter Development</i>	<b>Project (Number/Name)</b> 1109 / <i>CH/MH-53</i>
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<b>CH/MH-53</b>	<b>FY 2020</b>				<b>FY 2021</b>				<b>FY 2022</b>			
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
<b>Acquisition Milestones</b>												
<b>Engineering Milestones</b>												
	Obsolescence Issues/Studies											
	Survivability Analysis											
	Legacy P3I Efforts											
	Safety Upgrades											
<b>Test &amp; Evaluation</b>												
			APR-39D(V)2 Capability Analysis, Development & Integration									
			DVE/LSPC Software Development & Integration									

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2022 Navy		<b>Date:</b> May 2021
<b>Appropriation/Budget Activity</b> 1319 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604212N / <i>Other Helicopter Development</i>	<b>Project (Number/Name)</b> 1109 / <i>CH/MH-53</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>CH/MH-53</b>				
Engineering Milestones: - Obsolescence Issues/Studies	1	2020	4	2022
Engineering Milestones: - Survivability Analysis	1	2020	4	2022
Engineering Milestones: - Legacy P3I Efforts	1	2020	4	2022
Engineering Milestones: - Safety Upgrades	1	2020	4	2022
Test & Evaluation: APR-39D(V)2 Capability Analysis, Development & Integration	3	2020	4	2021
Test & Evaluation: Degraded Visual Environment/Low Speed Precision Control Development & Integration	1	2020	4	2021

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2022 Navy										<b>Date:</b> May 2021		
<b>Appropriation/Budget Activity</b> 1319 / 5					<b>R-1 Program Element (Number/Name)</b> PE 0604212N / Other Helicopter Development				<b>Project (Number/Name)</b> 3406 / Attack and Utility Replacement Aircraft			
<b>COST (\$ in Millions)</b>	<b>Prior Years</b>	<b>FY 2020</b>	<b>FY 2021</b>	<b>FY 2022 Base</b>	<b>FY 2022 OCO</b>	<b>FY 2022 Total</b>	<b>FY 2023</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
3406: Attack and Utility Replacement Aircraft	17.501	11.904	11.332	53.576	-	53.576	-	-	-	-	-	-
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

**A. Mission Description and Budget Item Justification**

Attack and Utility Replacement Aircraft (AURA) is a United States Marine Corps (USMC) Vertical Lift (VL) capability requirements and determine feasible and affordable solutions in support of the USMC Warfighter. Attack and Utility Replacement Aircraft (AURA) is a USMC initiative to address vertical lift capability requirements and determine feasible and affordable solutions in support of the USMC Warfighter. This is a supporting element of the USMC's Force Design 2030 guidance. AURA will provide unmatched strategic, operational, and tactical agility to perform a multitude of missions currently unachievable by any conventionally configured rotorcraft. AURA is closely aligned to the OSD-sponsored Future Vertical Lift (FVL) Family of Systems (FoS) initiative and will look to leverage any aspects of the Joint Service programs that may benefit the USMC through accelerated development or reduced life cycle costs. AURA will be a force multiplier with superior performance, payload, survivability, agility, endurance, and reliability that enables warfighters to win in a future dynamic battlespace. AURA offers evolutionary operational opportunities over current Vertical Take Off Landing (VTOL) aircraft. In order to reach this goal, anticipated efforts include achieving Milestone A, RFP development and Release, Source Selection, acquisition documentation, risk reduction initiatives, and contract award.

AURA will increase the Marine Air Ground Task Force's (MAGTF) capacity of long-range fires.

AURA will utilize DOTmLPP-P that will include all facets of a program with particular focus on life-cycle cost reductions through common processes, support equipment, logistic support and component commonality utilizing non-materiel solutions, such as maintenance strategies, training solutions, and infrastructure requirements. The air vehicle will include primary mechanical, electrical, pneumatic, and structural components such as drivetrain, generators, landing gear, hydraulics, controls, seats, etc. The mission subsystems will include all on and off-board components with embedded control software for those components that provide all mission functionality, cockpit displays, cockpit hardware subsystem controllers and interfaces. The architecture will include the fundamental organization of the complete system, the processing method/component(s), the platform software, the operating environment, and the on-aircraft infrastructure to facilitate integration of all subsystems and platform.

JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded for Design and Prototype Development leading to System Demonstration and includes conducting engineering and manufacturing development tasks aimed at meeting validated requirement prior to full-rate production decision.

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

	<b>FY 2020</b>	<b>FY 2021</b>	<b>FY 2022 Base</b>	<b>FY 2022 OCO</b>	<b>FY 2022 Total</b>
<b>Title:</b> Attack and Utility Replacement Aircraft	11.904	11.332	53.576	0.000	53.576
<b>Articles:</b>	-	-	-	-	-
<b>FY 2021 Plans:</b>					

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2022 Navy		<b>Date:</b> May 2021
<b>Appropriation/Budget Activity</b> 1319 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604212N / <i>Other Helicopter Development</i>	<b>Project (Number/Name)</b> 3406 / <i>Attack and Utility Replacement Aircraft</i>

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

	<b>FY 2020</b>	<b>FY 2021</b>	<b>FY 2022 Base</b>	<b>FY 2022 OCO</b>	<b>FY 2022 Total</b>
<p>Tasks to be perform may include but are not limited to: Acquisition Program Management functions, Acquisition Documentation to support the Milestone, Request for Proposal Development, Engineering modeling and analysis, Test and Evaluation planning development, a Model Based System Specification, Draft Capability Development Document development, and design trade studies and prototyping on the Air Vehicle and all associated systems. These efforts will include but not be limited to studies, virtual simulation, conceptual design, prototyping of Air Vehicle, Avionics, Propulsion and Dynamics, Communications and Navigation, Weapons and Fire Control, Human Systems Integration, Survivability and Vulnerability, Missions and Missions Systems Management, Reliability and Maintainability, Training, Logistics, Sensor, Pilotage and Targeting Systems, VMS/Flight Control, and Software/Hardware architecture. Support for these efforts will come from government, industry and academia such as Naval Research Labs, DARPA, Georgia Tech Research Institute, John Hopkins APL, Penn State University Applied Research Lab, and various industry partners.</p> <p><b>FY 2022 Base Plans:</b>                      Tasks to be performed may include but are not limited to: Acquisition Program Management functions, Acquisition Documentation to support the Milestone A, Request for Proposal Development, Engineering modeling and analysis, Test and Evaluation planning and development, a Model Based System Specification, Draft Capability Development Document completion, and design trade studies and prototyping on the Air Vehicle and all associated systems. These efforts will include but not be limited to studies, virtual simulation, conceptual design, prototyping of Air Vehicle, Avionics, Propulsion and Dynamics, Communications and Navigation, Weapons and Fire Control, Human Systems Integration, Survivability and Vulnerability, Missions and Missions Systems Management, Reliability and Maintainability, Training, Logistics, Sensor, Pilotage and Targeting Systems, VMS/Flight Control, and Software/Hardware architecture. Support for these efforts will come from government, industry and academia such as Naval Research Labs, DARPA, Georgia Tech Research Institute, John Hopkins APL, Penn State University Applied Research Lab, and various industry partners. Award BAA contracts supporting follow-on Technology and Risk Reduction (TMRR) efforts. Multiple Broad Agency Announcement (BAA) contract awards will support follow-on Technology and Risk Reduction (TMRR) efforts. This early collaboration with industry will advance technologies in the area of a Modular Open Systems Approach (MOSA) to systems architectures, knowledge gains in the execution and adoption of Model Based Systems Engineering (MBSE) that can reduce timelines for engineering endeavors over traditional systems engineering approaches, and the advancement of weapons carriage and employment technologies that will be vital for the success of the AURA platform.</p> <p><b>FY 2022 OCO Plans:</b></p>					

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2022 Navy		<b>Date:</b> May 2021
<b>Appropriation/Budget Activity</b> 1319 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604212N / <i>Other Helicopter Development</i>	<b>Project (Number/Name)</b> 3406 / <i>Attack and Utility Replacement Aircraft</i>

<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	<b>FY 2020</b>	<b>FY 2021</b>	<b>FY 2022 Base</b>	<b>FY 2022 OCO</b>	<b>FY 2022 Total</b>
N/A					
<b><i>FY 2021 to FY 2022 Increase/Decrease Statement:</i></b> The increase from FY 2021 to FY 2022 funds risk mitigation studies, increased engineering support, and prototyping efforts to support a Milestone A program entry. Funding increases over FY 2021 for BAA contract awards in FY 2022. FY 2022 efforts will culminate in the entry of the program at Milestone A, due to exhaustive efforts with industry to reduce risk in areas such as systems engineering and the use of MBSE, advanced weapons carriage and employment, and systems architecture approaches that allow for rapid fielding of new capabilities.					
<b>Accomplishments/Planned Programs Subtotals</b>	11.904	11.332	53.576	0.000	53.576

<b>C. Other Program Funding Summary (\$ in Millions)</b>											
<u>Line Item</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>FY 2022 Base</u>	<u>FY 2022 OCO</u>	<u>FY 2022 Total</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• RDTE/0604212N/9999: <i>Congressional Adds</i>	9.654	0.000	0.000	-	0.000	-	-	-	-	-	-

**Remarks**  
FY 2021 Congressional Add is not associated with this project unit.

**D. Acquisition Strategy**  
The Analysis of Alternatives (AoA) was initiated in 3rd Quarter FY2017 to begin the assessment of the technical feasibility, operational feasibility, technical risk, and affordability of potential solutions. The AoA was completed in FY2019 resulting in a recommendation for a Milestone A entry and OSD Sufficiency. In FY2021, RFP preparation, prototyping and acquisition documentation efforts will be continued/initiated. In FY2022, industry studies and prototyping will continue, RFP and requirements documentation efforts will continue in preparation for a FY22 Milestone A program entry. The program will complete development and testing of the most cost effective system.

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

<b>Appropriation/Budget Activity</b> 1319 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604212N / Other Helicopter Development	<b>Project (Number/Name)</b> 3406 / Attack and Utility Replacement Aircraft
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<b>Product Development (\$ in Millions)</b>				<b>FY 2020</b>		<b>FY 2021</b>		<b>FY 2022 Base</b>		<b>FY 2022 OCO</b>		<b>FY 2022 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>			
Primary Hardware Development	C/CPFF	Various : Various	0.000	0.000		1.820	Jan 2021	0.000		-		0.000	-	-	-
Industry Technology Collaboration	C/CPFF	Various : Various	0.000	0.000		0.000		23.798	Jan 2022	-		23.798	-	-	-
Joint All Domain Operations (JADO)/TAC Demo	C/CPFF	Various : Various	0.000	0.000		0.000		10.036	Jan 2022	-		10.036	-	-	-
Studies and Analysis	C/CPFF	Various : Various	0.000	3.477	Jan 2020	1.755	Jan 2021	8.887	Jan 2022	-		8.887	-	-	-
<b>Subtotal</b>			0.000	3.477		3.575		42.721		-		42.721	-	-	N/A

**Remarks**  
 The increase in Product Development for FY22 is reflected in the addition of the "Industry Technology Collaboration" and "Joint All Domain Operations (JADO)/TAC Demo" lines. This reflects the Program's efforts to collaborate as early as possible with industry and other DoD Components. Early Industry Technology Collaboration will help reduce program risk by addressing traditional areas of risk for new start programs. This collaboration will address technology areas such as weapons carriage and employment, the rapid integration of new capabilities through open system architectures, and joint digital interoperability. JADO/TAC Demo efforts will ensure continued multi-service participation in defining joint requirements and that intra-service interoperability is addressed. These efforts are critical to the program in order to define requirements and identify cost savings/sharing opportunities across DoD Components.

<b>Support (\$ in Millions)</b>				<b>FY 2020</b>		<b>FY 2021</b>		<b>FY 2022 Base</b>		<b>FY 2022 OCO</b>		<b>FY 2022 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>			
Development Support	WR	NAWCAD : Patuxent River, MD	5.226	2.913	Jan 2020	2.078	Jan 2021	6.915	Jan 2022	-		6.915	-	-	-
Development Support	WR	Various : Various	3.206	1.131	Jan 2020	0.829	Jan 2021	0.500	Jan 2022	-		0.500	-	-	-
<b>Subtotal</b>			8.432	4.044		2.907		7.415		-		7.415	-	-	N/A

**Remarks**  
 The increase in Support in FY22 reflects the need for increased levels of support for AURA's industry collaboration and joint service initiatives while allowing the Government to be fully prepared for the program's Milestone A entry.

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

<b>Appropriation/Budget Activity</b> 1319 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604212N / Other Helicopter Development	<b>Project (Number/Name)</b> 3406 / Attack and Utility Replacement Aircraft
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<b>Test and Evaluation (\$ in Millions)</b>				<b>FY 2020</b>		<b>FY 2021</b>		<b>FY 2022 Base</b>		<b>FY 2022 OCO</b>		<b>FY 2022 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>			
Development Test and Evaluation	WR	Various : Various	0.000	0.000	Nov 2019	0.350	Nov 2020	0.350	Nov 2021	-		0.350	-	-	-
Studies and Analysis	C/CPFF	Various : Various	4.551	0.000		0.000		0.000		-		0.000	-	-	-
<b>Subtotal</b>			4.551	0.000		0.350		0.350		-		0.350	-	-	N/A

<b>Management Services (\$ in Millions)</b>				<b>FY 2020</b>		<b>FY 2021</b>		<b>FY 2022 Base</b>		<b>FY 2022 OCO</b>		<b>FY 2022 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>			
Contractor Engineering Support	C/CPIF	Various : Various	1.740	2.837	Nov 2019	2.808	Nov 2020	0.000		-		0.000	-	-	-
Program Management Support	WR	Various : Various	2.193	1.411	Nov 2019	1.267	Nov 2020	3.040	Nov 2021	-		3.040	-	-	-
Travel	WR	NAVAIR : Patuxent River, MD	0.585	0.135	Oct 2019	0.425	Oct 2020	0.050	Oct 2021	-		0.050	-	-	-
<b>Subtotal</b>			4.518	4.383		4.500		3.090		-		3.090	-	-	N/A

**Remarks**  
The decrease in Contractor Engineering Support in FY22 is due to the realignment of services to direct product development/support.

	<b>Prior Years</b>	<b>FY 2020</b>		<b>FY 2021</b>		<b>FY 2022 Base</b>		<b>FY 2022 OCO</b>		<b>FY 2022 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Project Cost Totals</b>	17.501	11.904		11.332		53.576		-		53.576	-	-	N/A

**Remarks**

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

<b>Appropriation/Budget Activity</b> 1319 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604212N / Other Helicopter Development	<b>Project (Number/Name)</b> 3406 / Attack and Utility Replacement Aircraft
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<b>Attack and Utility Replacement Aircraft</b>	FY 2020				FY 2021				FY 2022			
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
<b>Acquisition Milestones</b>												
Milestone A											MS A ◆	
Technical Maturation Risk Reduction (TMRR) Contract Award												
<b>Systems Development</b>												
TMRR Contract												
MBSE BAA												
MOSA OTA												
UARC Studies and Analysis												

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<b>Exhibit R-4A, RDT&amp;E Schedule Details: PB 2022 Navy</b>		<b>Date: May 2021</b>
<b>Appropriation/Budget Activity</b> 1319 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604212N / <i>Other Helicopter Development</i>	<b>Project (Number/Name)</b> 3406 / <i>Attack and Utility Replacement Aircraft</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b><i>Attack and Utility Replacement Aircraft</i></b>				
Acquisition Milestones: Milestone A: Milestone A	3	2022	3	2022
Systems Development: MBSE BAA: Schedule Detail	1	2021	3	2022
Systems Development: MOSA OTA: Schedule Detail	1	2022	4	2022
Systems Development: UARC Studies and Analysis: Schedule Detail	1	2020	4	2022

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

<b>Appropriation/Budget Activity</b> 1319 / 5					<b>R-1 Program Element (Number/Name)</b> PE 0604212N / <i>Other Helicopter Development</i>				<b>Project (Number/Name)</b> 9999 / <i>Congressional Adds</i>			
<b>COST (\$ in Millions)</b>	<b>Prior Years</b>	<b>FY 2020</b>	<b>FY 2021</b>	<b>FY 2022 Base</b>	<b>FY 2022 OCO</b>	<b>FY 2022 Total</b>	<b>FY 2023</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
9999: <i>Congressional Adds</i>	0.000	9.654	5.000	0.000	-	0.000	-	-	-	-	-	-
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

**A. Mission Description and Budget Item Justification**

Attack and Utility Replacement Aircraft (AURA) is a USMC initiative to address vertical lift capability requirements and determine feasible and affordable solutions in support of the USMC Warfighter. AURA will provide unmatched strategic, operational, and tactical agility to perform a multitude of missions currently unachievable by any conventionally configured rotorcraft. AURA will be a force multiplier with superior performance, payload, survivability, agility, endurance, and reliability that enables warfighters to win in a future dynamic battlespace. AURA offers evolutionary operational opportunities over current Vertical Take Off Landing (VTOL) aircraft. In order to reach this goal, anticipated efforts include achieving Milestone A, RFP development and Release, Source Selection, acquisition documentation, risk reduction initiatives, and contract award.

AURA will increase the Marine Air Ground Task Force's (MAGTF) capacity of long-range fires. AURA will utilize DOTmLPF-P that will include all facets of a program with particular focus on life-cycle cost reductions through common processes, support equipment, logistic support and component commonality utilizing non-materiel solutions, such as maintenance strategies, training solutions, and infrastructure requirements. The air vehicle will include primary mechanical, electrical, pneumatic, and structural components such as drivetrain, generators, landing gear, hydraulics, controls, seats, etc. The mission subsystems will include all on and off-board components with embedded control software for those components that provide all mission functionality, cockpit displays, cockpit hardware subsystem controllers, and interfaces. The architecture will include the fundamental organization of the complete system, the processing method/component(s), the platform software, the operating environment, and the on-aircraft infrastructure to facilitate integration of all subsystems and platform.

FY 2021 Congressional Add provides funding for a CH-53E Health Usage Monitoring System.

JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded for Design and Prototype Development leading to System Demonstration and includes conducting engineering and manufacturing development tasks aimed at meeting validated requirement prior to full-rate production decision.

CH-53E Health Usage Monitoring System: TBD

**B. Accomplishments/Planned Programs (\$ in Millions)**

	<b>FY 2020</b>	<b>FY 2021</b>
<b>Congressional Add:</b> Attack and utility helicopter replacement	9.654	0.000
<b>FY 2020 Accomplishments:</b> N/A		
<b>FY 2021 Plans:</b> Tasks to be performed include but are not limited to: Acquisition Program Management functions, Acquisition Documentation to support the Milestone, Request for Proposal Development, Engineering		

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

<b>Appropriation/Budget Activity</b> 1319 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604212N / <i>Other Helicopter Development</i>	<b>Project (Number/Name)</b> 9999 / <i>Congressional Adds</i>
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<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>	<b>FY 2020</b>	<b>FY 2021</b>
modeling and analysis, TEMP development, a Model Based System Specification, Draft Capability Development Document development, and design trade studies and prototyping on the Air Vehicle and all associated systems. These efforts will include but not be limited to studies, virtual simulation, conceptual design, prototyping of Air Vehicle, Avionics, Propulsion and Dynamics, Communications and Navigation, Weapons and Fire Control, Human Systems Integration, Survivability and Vulnerability, Missions and Missions Systems Management, Reliability and Maintainability, Training, Logistics, Sensor, Pilotage and Targeting Systems, VMS/Flight Control, and Software/Hardware architecture. Support for these efforts will come from government, industry and academia such as Naval Research Labs, DARPA, Georgia Tech Research Institute, John Hopkins APL, Penn State University Applied Research Lab, and various industry partners.		
<b>Congressional Add:</b> CH-53E Health Usage Monitoring System	0.000	5.000
<b>FY 2020 Accomplishments:</b> N/A		
<b>FY 2021 Plans:</b> N/A		
<b>Congressional Adds Subtotals</b>	9.654	5.000

<b>C. Other Program Funding Summary (\$ in Millions)</b>											
<b>Line Item</b>	<b>FY 2020</b>	<b>FY 2021</b>	<b>FY 2022 Base</b>	<b>FY 2022 OCO</b>	<b>FY 2022 Total</b>	<b>FY 2023</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
• RDTE/0604212N/3406: <i>Attack and Utility Replacement Aircraft</i>	11.904	11.332	53.576	-	53.576	-	-	-	-	-	-
• RDTE/0604212N/1109: <i>CH/MH-53</i>	16.254	6.801	2.868	-	2.868	-	-	-	-	-	-

**Remarks**

**D. Acquisition Strategy**  
 The Analysis of Alternatives (AoA) was initiated in 3rd Quarter FY2017 to begin the assessment of the technical feasibility, operational feasibility, technical risk, and affordability of potential solutions. The AoA was completed in FY2019 resulting in a recommendation for a Milestone A entry and OSD Sufficiency. In FY2021, RFP preparation, prototyping and acquisition documentation efforts will be continued/initiated. In FY2021, industry studies and prototyping will continue, RFP and requirements documentation efforts will continue in preparation for a FY22 Milestone A program entry. The program will complete development and testing of the most cost effective system.

CH-53E Health Usage Monitoring System: TBD

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

<b>Appropriation/Budget Activity</b> 1319 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604212N / Other Helicopter Development	<b>Project (Number/Name)</b> 9999 / Congressional Adds
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<b>Product Development (\$ in Millions)</b>				<b>FY 2020</b>		<b>FY 2021</b>		<b>FY 2022 Base</b>		<b>FY 2022 OCO</b>		<b>FY 2022 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>			
Studies and Analysis	C/CPFF	Various : Various	0.000	8.604	Aug 2020	0.000		0.000		-		0.000	-	-	-
CH-53E Health Usage Monitoring System (HUMS)	C/CPFF	TBD : TBD	0.000	0.000		5.000	Sep 2021	0.000		-		0.000	-	-	-
<b>Subtotal</b>			0.000	8.604		5.000		0.000		-		0.000	-	-	N/A

**Remarks**  
 FY20 Congressional funds support multiple concept advancement efforts in key areas, such as MOSA, MBSE, etc. in order to reduce risk for upcoming Milestone A.  
 FY21 Congressional funds support CH-53E Health Usage Monitoring System (HUMS)

<b>Support (\$ in Millions)</b>				<b>FY 2020</b>		<b>FY 2021</b>		<b>FY 2022 Base</b>		<b>FY 2022 OCO</b>		<b>FY 2022 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>			
Developmental Support	WR	NAWCAD : PAXR	0.000	0.651	Nov 2019	0.000		0.000		-		0.000	-	-	-
<b>Subtotal</b>			0.000	0.651		0.000		0.000		-		0.000	-	-	N/A

<b>Management Services (\$ in Millions)</b>				<b>FY 2020</b>		<b>FY 2021</b>		<b>FY 2022 Base</b>		<b>FY 2022 OCO</b>		<b>FY 2022 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>			
Program Management Support	WR	NAWCAD : PAXR	0.000	0.399	Nov 2019	0.000		0.000		-		0.000	-	-	-
<b>Subtotal</b>			0.000	0.399		0.000		0.000		-		0.000	-	-	N/A

<b>Project Cost Totals</b>	<b>Prior Years</b>	<b>FY 2020</b>	<b>FY 2021</b>	<b>FY 2022 Base</b>	<b>FY 2022 OCO</b>	<b>FY 2022 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
	0.000	9.654	5.000	0.000	-	0.000	-	-	N/A

**Remarks**

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

<b>Appropriation/Budget Activity</b> 1319 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604212N / <i>Other Helicopter Development</i>	<b>Project (Number/Name)</b> 9999 / <i>Congressional Adds</i>
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<b>Attack and Utility Replacement Aircraft</b>	FY 2020				FY 2021				FY 2022			
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
<b>Acquisition Milestones</b>												
Milestone A												MS A ◆
MDA Developmental RFP Release Decision												
<b>Systems Development</b>												
Technical Maturation Risk Reduction (TMRR)												
Engineering & Manufacturing Development (EMD)												
MBSE BAA												
MOSA BAA												
UARC Studies and Analysis												

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

<b>Appropriation/Budget Activity</b> 1319 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604212N / <i>Other Helicopter Development</i>	<b>Project (Number/Name)</b> 9999 / <i>Congressional Adds</i>
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CH-53E Super Stallion	FY 2020				FY 2021				FY 2022			
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
<b>Systems Development</b>  CH-53E Health Usage Monitoring System												

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2022 Navy		<b>Date:</b> May 2021
<b>Appropriation/Budget Activity</b> 1319 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604212N / <i>Other Helicopter Development</i>	<b>Project (Number/Name)</b> 9999 / <i>Congressional Adds</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b><i>Attack and Utility Replacement Aircraft</i></b>				
Acquisition Milestones: Milestone A: Milestone A	4	2022	4	2022
Systems Development: MBSE BAA: Schedule Detail	1	2021	3	2022
Systems Development: MOSA BAA: Schedule Detail	1	2022	4	2022
Systems Development: UARC Studies and Analysis: Schedule Detail	1	2021	4	2022
<b><i>CH-53E Super Stallion</i></b>				
Systems Development: CH-53E Health Usage Monitoring System: Schedule Detail	1	2021	4	2022