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**Exhibit R-2, RDT&E Budget Item Justification:** PB 2021 Air Force **Date:** February 2020

<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 5: System Development &amp; Demonstration (SDD)</i>	<b>R-1 Program Element (Number/Name)</b> PE 0605229F / <i>Combat Rescue Helicopter</i>
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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	1,228.220	430.483	247.047	63.169	0.000	63.169	29.936	21.840	1.498	2.097	55.000	2,079.290
654364: <i>Combat Rescue Helicopter</i>	1,228.220	430.483	247.047	63.169	0.000	63.169	29.936	21.840	1.498	2.097	55.000	2,079.290
Quantity of RDT&E Articles	9	-	1	-	-	-	-	-	-	-	-	-

**Program MDAP/MAIS Code:** 479

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

The HH-60W program will replace the aging HH-60G. The HH-60G currently supports the Air Force's core function of Personnel Recovery. The primary mission of the HH-60G is to conduct day / night / marginal weather Combat Search and Rescue (CSAR) in order to recover downed aircrew or other isolated personnel in hostile or non-permissive environments.

The HH-60W will be capable of employment day or night, in adverse weather, and across the full spectrum of threats to include chemical, biological, radiological, and nuclear. Onboard defensive capabilities will permit the HH-60W system to operate with less risk than legacy systems in an increased threat environment. An in-flight air refueling capability will provide an airborne alert capability and extend its combat mission range. The HH-60W system is capable of conducting combat search and rescue airborne mission commander duties. The aircraft will be self-supporting to the maximum extent practical. The HH-60W system may also conduct other collateral missions inherent in their capabilities to conduct Personnel Recovery, such as non-conventional assisted recovery, non-conventional evacuation operations, defense support to civil authorities, civil search and rescue, international aid, emergency aeromedical evacuation, disaster/humanitarian relief, counterdrug activities, support for National Aeronautics and Space Administration flight operations, and insertion/extraction of combat forces.

The HH-60W development program will procure a total of ten aircraft as follows: four Engineering, Manufacturing, and Development (EMD) aircraft, five System Demonstration Test Article (SDTA) aircraft, and one modernization flight test aircraft. The FY20 PB added the modernization flight test aircraft. In addition, the HH-60W program office will procure necessary ground and flight assets required for both Development Test (DT) and Initial Operational Test & Evaluation (IOT&E). The HH-60W EMD program includes development of the complete HH-60W training system to include HH-60W Weapon System Trainer (WST), Operational Flight Trainer (OFT), Airframe Systems Trainer (AST), Avionics Desktop Trainer (AVDTT), other training devices, with associated spares and support equipment, as well as Type 1 training and courseware required to perform flight, aircrew and maintenance training. Other development efforts include a systems integration laboratory, an avionics integration support facility, procurement of data rights and licenses, spares, SDTA aircraft, Government test, and product support. The HH-60W program will also pursue modernization efforts to develop and integrate enhancements in mission/defensive systems and additional system upgrades to address critical capability gaps. The program office will utilize the additional flight test aircraft in support of modernization efforts, including Infrared Countermeasures (IRCM) testing, to address emerging threats and evolving mission needs.

The Delta Training Device (DTD) effort will procure additional training assets, including but not limited to, maintenance Crew Chief Part Task Trainers (CCPTT) and aircrew Hoist Procedural Trainers (HPT) with associated spares and support equipment, as well as Type 1 training.

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Capability upgrade and modernization development efforts for the HH-60W include, but are not limited to, the following priorities: Situational Awareness Data Link/ Automatic Direction Finder Removal, Distributed Aperture Infrared Countermeasures, Electro Optical/Infrared Tactical Overlay, Global Positioning System Anti-Jam/ Anti-Spoof, Degraded Visual Environment system, Integrated Vehicle Health Monitoring System Control, Video Data Link, Radio Frequency Jammer, Electronic Flight Bags, and Automated Dependent Surveillance Broadcast - In Device. Capability upgrade and modernization also supports inclusion for mandates, hardware changes for diminishing manufacturing sources and Deficiency Report Resolutions. In addition, studies, development, prototyping, testing and integration of emerging technology and support equipment opportunities to increase the effectiveness of the platform are considered in capability upgrade and modernization initiatives.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver HH-60W weapon system capability. The use of such program funds would be in addition to the civilian pay expenses budgeted in program element 0605831F.

This program is in Budget Activity 5, System Development and Demonstration (SDD) because it has passed Milestone B approval and is conducting engineering and manufacturing development tasks aimed at meeting validated requirements prior to full rate production.

<b>B. Program Change Summary (\$ in Millions)</b>	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021 Base</b>	<b>FY 2021 OCO</b>	<b>FY 2021 Total</b>
Previous President's Budget	445.652	247.047	37.711	0.000	37.711
Current President's Budget	430.483	247.047	63.169	0.000	63.169
Total Adjustments	-15.169	0.000	25.458	0.000	25.458
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	-15.169	0.000			
• Other Adjustments	0.000	0.000	25.458	0.000	25.458

**Change Summary Explanation**

FY 2019 funding decrease of \$15.169M due to Small Business Innovation Research (SBIR).

FY 2021 funding increase of \$25.458M in accordance with Air Force service cost position adjustment that supports capability upgrade and modernization development efforts.

<b>C. Accomplishments/Planned Programs (\$ in Millions)</b>	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021 Base</b>	<b>FY 2021 OCO</b>	<b>FY 2021 Total</b>
<b>Title:</b> HH-60W	414.296	204.645	2.312	-	2.312

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<b>C. Accomplishments/Planned Programs (\$ in Millions)</b>	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
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**Description:** Develop a new helicopter, associated training system and support elements that leverage fielded, non-developmental technologies to recapitalize the HH-60G fleet.

**FY 2020 Plans:**  
Continue development efforts on HH-60W aircraft, training systems, modernization and associated product support, including acquiring an additional test aircraft. Consider rapid acquisition authorities, where possible, to develop and integrate mission/defensive systems to address capability gaps. Continue to develop the EMD and SDTA aircrafts and conduct required testing. Continue pre-operational support, training, maintenance support, facilities support, and integration. Continue studies, analysis and training courses.

**FY 2021 Base Plans:**  
Continue development efforts on HH-60W aircraft, training systems, modernization and associated product support, including developing and integrating mission/defensive systems to address capability gaps. Continue conducting required testing. Continue pre-operational support, training, maintenance support, facilities support, and integration. Continue studies, analysis and training courses.

**FY 2020 to FY 2021 Increase/Decrease Statement:**  
Funding decreased due to projected completion of the prime EMD effort. Modernization efforts are on-going.

<b>Title:</b> HH-60W Government Test and Evaluation	7.200	11.700	5.000	-	5.000
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**Description:** Conduct test and evaluation on the HH-60W and associated training systems to support Developmental Test and Evaluation, Operational Test and Evaluation, Live Fire Test and Evaluation, and other test planning and organizational support.

**FY 2020 Plans:**  
Continue to witness contractor qualification testing on subcomponents. Test and evaluate mission/defensive systems. Continue Operational Test and Evaluation planning. Conduct Developmental Test and Evaluation and Live Fire Test and Evaluation.

**FY 2021 Base Plans:**  
Test and evaluate mission/defensive systems. Continue Operational Test and Evaluation Planning, Developmental Test and Evaluation and Live Fire Test and Evaluation. Finalize developmental test report and

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<b>C. Accomplishments/Planned Programs (\$ in Millions)</b>					
prepare for Initial Operational Test & Evaluation test readiness review and transition into Initial Operational Test & Evaluation.					
<b>FY 2020 to FY 2021 Increase/Decrease Statement:</b> Funding decreased due to ramping down of DT&E activities and transition into IOT&E.					
<b>Title:</b> Capability Upgrades & Modernization					
<b>Description:</b> Modernize the HH-60W fleet by studying, prototyping testing and integrating developmental and non-developmental technologies into the platform.					
<b>FY 2020 Plans:</b> Continue modernization efforts based on user prioritized capabilities, including mandates, hardware changes for diminishing manufacturing sources, Deficiency Report Resolutions, studies, prototyping, testing and integration of emerging technologies and support equipment opportunities. FY20 capability upgrade activities include software development for Situational Awareness Data Link (SADL)/Automatic Direction Finder (ADF) removal, Electro-Optical/Infrared Overlay, and Distributed Aperture Infrared Countermeasures (DAIRCM). The program is currently exploring additional research opportunities in GPS Anti-Jam/Anti Spoof and DVE upgrades.					
<b>FY 2021 Base Plans:</b> Establish an agile, flexible, long-term contracting solution (ID/IQ type contracts) to efficiently award emerging modernization opportunities to further the effectiveness of the HH-60W fleet. Continue modernization efforts based on user prioritized capabilities, including mandates, hardware changes for diminishing manufacturing sources, Deficiency Report Resolutions, studies, prototyping, testing and integration of emerging technologies and support equipment opportunities. FY21 capability upgrade activities include in-line production and retrofit work on Situational Awareness Data Link (SADL)/Automatic Direction Finder (ADF) removal as well as software development and integration development for the Electro-Optical/Infrared Overlay and the Distributed Aperture Infrared Countermeasures (DAIRCM) modifications. The program is anticipating the ability to leverage new long-term ID/IQ contract for GPS Anti-Jam/Anti-Spoof and DVE development. Funding has been allocated to work towards the MUOS mandate.					
<b>FY 2020 to FY 2021 Increase/Decrease Statement:</b> Funding increased to support modernization efforts and awarding additional long-term modernization contracts.					
<b>Accomplishments/Planned Programs Subtotals</b>					
	8.987	30.702	55.857	-	55.857
	430.483	247.047	63.169	-	63.169

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**D. 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
• MILCON Line Item 0207229F: <i>Combat Rescue Helicopter</i>	5.900	15.500	4.049	-	4.049	16.304	0.000	4.289	0.000	0.000	46.042
• APAF 04 Line Item H060WH: <i>Combat Rescue Helicopter</i>	660.358	850.535	973.473	174.000	1,147.473	1,258.477	1,483.613	1,258.709	80.341	809.515	7,549.021
• APAF 06 Line Item H060WH: <i>Combat Rescue Helicopter</i>	0.000	0.000	75.821	0.000	75.821	96.803	64.836	81.922	111.591	0.000	430.973

**Remarks**

**E. Acquisition Strategy**

Procure a new helicopter and associated training systems, and support elements that leverage fielded non-developmental technologies to recapitalize the HH-60G fleet.

Under the HH-60W development effort, the program office will procure a total of ten aircraft as follows: four Engineering, Manufacturing, and Development (EMD) aircraft, five System Demonstration Test Article (SDTA) aircraft, and one modernization flight test aircraft. In addition, the HH-60W program office will procure necessary ground and flight assets required for both DT and IOT&E. The FY20 PB added a modernization flight test aircraft.

The main HH-60W program includes development of the complete HH-60W system to include delivery of ten aircraft, associated training systems, to include Weapon System Trainer (WST), Operational Flight Trainer (OFT), Avionics Desktop Trainer (AVDTT), Airframe Systems Trainer (AST), other Part Task Trainers, with associated spares and support elements/equipment, as well as Type 1 training and courseware required to perform flight, aircrew and maintenance training. An additional prime contract was awarded to develop and acquire additional training devices. Other efforts include, but are not limited to, development of a systems integration laboratory and an avionics integration support facility, as well as procurement of data rights and licenses, spares, SDTA and product support for the EMD effort. The HH-60W modernization effort will accelerate fielding of capability upgrades, where possible, while still in production, minimizing the need for future post-production modifications.

The current contract types for this effort are predominantly Fixed Price. As originally planned following source selection, a formal HH-60W Training System Requirements Analysis (TSRA) was completed in Sep 2015. This analysis identified additional training requirements not accounted for in the original contract. These additional training devices, associated spares, support equipment, Type 1 Training and initial contractor support was competitively awarded in Aug 18.

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Air Force** **Date:** February 2020

<b>Appropriation/Budget Activity</b> 3600 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0605229F / <i>Combat Rescue Helicopter</i>	<b>Project (Number/Name)</b> 654364 / <i>Combat Rescue Helicopter</i>
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<b>Product Development (\$ in Millions)</b>				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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			
HH-60W aircraft development, integration, test articles, trainers, support and contractor test	C/FPIF	Sikorsky Aircraft Corporation : Stratford, CT	1,152.891	384.908	Dec 2018	154.483	Jan 2020	-		-		-	0.000	1,692.282	-
Acquisition of additional HH-60W training devices	C/FFP	Logistics Services Int'l : TBD	9.000	12.000	Aug 2019	5.557	May 2020	-		-		-	0.000	26.557	-
HH-60W Capability Upgrades and Modernization	C/TBD	TBD : TBD	0.000	8.987	Jul 2019	30.702	Jan 2020	55.857	Dec 2020	-		55.857	106.331	201.877	-
<b>Subtotal</b>			1,161.891	405.895		190.742		55.857		-		55.857	106.331	1,920.716	N/A

<b>Support (\$ in Millions)</b>				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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			
HH-60W product support related to aircraft development, integration, test articles, trainers and contractor test	Various	Various : TBD	16.131	9.707	Jun 2019	44.605	Jun 2020	2.312	Jun 2021	-		2.312	4.040	76.795	-
<b>Subtotal</b>			16.131	9.707		44.605		2.312		-		2.312	4.040	76.795	N/A

<b>Test and Evaluation (\$ in Millions)</b>				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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			
HH-60W planning and testing to support developmental and operational test, live fire test and other weapon system testing and support	PO	413th Test Squadron : Eglin AFB, FL	19.403	7.200	Dec 2018	11.700	Dec 2019	5.000	Dec 2020	-		5.000	0.000	43.303	-
<b>Subtotal</b>			19.403	7.200		11.700		5.000		-		5.000	0.000	43.303	N/A

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Air Force** **Date:** February 2020

<b>Appropriation/Budget Activity</b> 3600 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0605229F / <i>Combat Rescue Helicopter</i>	<b>Project (Number/Name)</b> 654364 / <i>Combat Rescue Helicopter</i>
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<b>Management Services (\$ in Millions)</b>				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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			
HH-60W A&AS Support	C/CPFF	EPASS : Dayton, OH	23.193	5.568	Mar 2019	-		-		-		-	0.000	28.761	-
HH-60W Other PMA	Various	Various : Various	7.602	2.113	Dec 2018	-		-		-		-	0.000	9.715	-
<b>Subtotal</b>			30.795	7.681		-		-		-		-	0.000	38.476	N/A
<b>Project Cost Totals</b>			1,228.220	430.483		247.047		63.169		-		63.169	110.371	2,079.290	N/A

**Remarks**  
 FINANCIAL PERFORMANCE: HH-60W is evaluated against traditional Research and Development (R&D) program expenditure benchmarks. Unlike many traditional R&D programs, however, the HH-60W EMD contract is a FPIF contract with progress payments. Twenty percent of incurred costs are withheld until the end of the contract, when they are liquidated. Mandatory funding obligations, progress payment restrictions and DFAS withholds will cause the program to lag traditional expenditure benchmarks, painting an inaccurate portrait of overall program health.

FY20+: Transitioned Management Services to 3010.

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**Exhibit R-4, RDT&E Schedule Profile: PB 2021 Air Force** **Date:** February 2020

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FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

<b>HH-60W</b>	
HH-60W EMD Development	
HH-60W CRH Training System EMD Development	
HH-60W Test and Evaluation	
Developmental Test and Evaluation	
Milestone C	
Required Assets Available for Initial Operational Capability	
Capability Upgrades and Modernization	

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**Exhibit R-4A, RDT&E Schedule Details:** PB 2021 Air Force **Date:** February 2020

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Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b><i>HH-60W</i></b>				
HH-60W EMD Development	1	2019	4	2023
HH-60W CRH Training System EMD Development	1	2019	4	2021
HH-60W Test and Evaluation	1	2019	3	2022
Developmental Test and Evaluation	4	2019	4	2021
Milestone C	4	2019	4	2019
Required Assets Available for Initial Operational Capability	2	2021	2	2021
Capability Upgrades and Modernization	4	2019	4	2025