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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Air Force										Date: February 2019		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 5: System Development & Demonstration (SDD)					R-1 Program Element (Number/Name) PE 0605229F I Combat Rescue Helicopter							
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
Total Program Element	886.202	342.030	445.652	247.047	0.000	247.047	37.711	21.488	21.879	0.000	0.000	2,002.009
654364: Combat Rescue Helicopter	886.202	342.030	445.652	247.047	0.000	247.047	37.711	21.488	21.879	0.000	0.000	2,002.009
Quantity of RDT&E Articles	9	-	-	1	-	1	-	-	-	-		
Program MDAP/MAIS Code: 479												
A. Mission Description and Budget Item Justification												
<p>The Combat Rescue Helicopter (CRH) 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.</p>												
<p>The CRH 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 CRH 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 CRH 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 CRH 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.</p>												
<p>The CRH 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 increasing the program of record from 112 to 113. In addition, the CRH program office will procure necessary ground and flight assets required for both Development Test (DT) and Initial Operational Test & Evaluation (IOT&E). The CRH EMD contract includes development of the complete CRH training system to include CRH Weapon System Trainer (WST), Operational Flight Trainer (OFT), Airframe Systems Trainer (AST), Avionics Desktop Trainer (AVDTT), other maintenance training devices, with associated spares and support equipment, as well as Type 1 training and courseware required to perform 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. Where possible, the CRH program will pursue modernization efforts using rapid acquisition authorities 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 planned modernization efforts, including Infrared Countermeasures (IRCM) testing.</p>												
<p>The Delta Training Device (DTD) development effort will procure a total of two Engineering & Manufacturing Development (EMD) training assets, a maintenance Crew Chief Part Task Trainer (CCPTT) and an aircrew Hoist Procedural Trainer (HPT) with associated spares and support equipment, as well as Type 1 training.</p>												

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This program element may include necessary civilian pay expenses required to manage, execute, and deliver Combat Rescue Helicopter weapon system capability. The use of such program funds will be in addition to the civilian pay expenses budgeted in program elements 0605826F, 0605827F, 0605828F, 0605829F, 0605830F, 0605831F, 0605832F, 0605898F and 0605833F.								
As directed in the FY 2018 NDAA, Sec 825, amendment to PL 114-92 FY 2016 NDAA, Sec 828 Penalty for Cost Overruns, the FY 2018 Air Force penalty total is \$14.373M. The calculated percentage reduction to each research, development, test and evaluation and procurement account will be allocated proportionally from all programs, projects, or activities under such account.								
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. Program Change Summary (\$ in Millions)		FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total		
Previous President's Budget		354.485	457.652	232.047	0.000	232.047		
Current President's Budget		342.030	445.652	247.047	0.000	247.047		
Total Adjustments		-12.455	-12.000	15.000	0.000	15.000		
• Congressional General Reductions		0.000	0.000					
• Congressional Directed Reductions		0.000	-12.000					
• 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		-12.455	0.000					
• Other Adjustments		0.000	0.000	15.000	0.000	15.000		
Change Summary Explanation								
FY 2018: Funds reduced by \$12.455M for a Small Business Innovation Research (SBIR) transfer.								
FY 2019: Funds reduced by \$12M for a Congressional mark, "Development funding excess to need"								
FY 2020: The FY 2020 funding request was increased by \$15 million. This increase, along with reprioritization of unrealized risk funding, procured an additional HH-60W for modernization flight test, increasing the program of record to 113 aircraft.								
C. Accomplishments/Planned Programs (\$ in Millions)				FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Title: Combat Rescue Helicopter (CRH)				333.030	434.252	235.347	0.000	235.347

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C. Accomplishments/Planned Programs (\$ in Millions)		FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
<p>Description: Develop a new helicopter, associated training system and support elements that leverage fielded, non-developmental technologies to recapitalize the HH-60G fleet.</p> <p>FY 2019 Plans: Continue development efforts on CRH aircraft, training systems and associated product support and begin modernization development. Continue to develop the EMD and SDTA aircrafts and conduct required testing. Continue pre-operational support, aircrew training, and maintenance support for support and integration facilities. Stabilize facilities expansion and equipment purchase for Electronic Warfare Integrated Reprogramming (EWIR) capability. Management services including studies and analysis, miscellaneous program office support, travel, office supplies, training courses and service contracts. This program is expected to receive approval to enter Milestone C Production and Deployment phase and initiate the Low Rate Initial Production (LRIP) contract award in Sep 19.</p> <p>FY 2020 Base Plans: Continue development efforts on CRH aircraft, training systems, modernization and associated product support, including acquiring an additional test aircraft. Use rapid acquisition authorities 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, aircrew training, and maintenance support for support and integration facilities. Continue management services including studies and analysis, miscellaneous program office support, travel, office supplies, training courses and service contracts.</p> <p>FY 2020 OCO Plans: None</p> <p>FY 2019 to FY 2020 Increase/Decrease Statement: Funding decreased due to ramping down of NRE development efforts as initiation of Government Test activities ramp up, and the program transitions into the production phase.</p>						
<p>Title: Combat Rescue Helicopter Government Test and Evaluation</p> <p>Description: Conduct test and evaluation on the Combat Rescue Helicopter and associated training systems to support Developmental Test and Evaluation planning, Operational Test and Evaluation planning, Live Fire Test and Evaluation, and other test planning and organizational support.</p> <p>FY 2019 Plans:</p>		9.000	11.400	11.700	0.000	11.700

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C. Accomplishments/Planned Programs (\$ in Millions)											
					FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total		
Continue to witness contractor qualification testing on subcomponents. Continue Operational Test and Evaluation Planning. Conduct Developmental Test and Evaluation and Live Fire Test and Evaluation.											
FY 2020 Base Plans: Continue to witness contractor qualification testing on subcomponents. Use rapid acquisition authorities to test and evaluate mission/defensive systems. Continue Operational Test and Evaluation Planning. Conduct Developmental Test and Evaluation and Live Fire Test and Evaluation.											
FY 2020 OCO Plans: None											
FY 2019 to FY 2020 Increase/Decrease Statement: Funding increased due to updated phasing of test and evaluation activities.											
Accomplishments/Planned Programs Subtotals					342.030	445.652	247.047	0.000	247.047		
D. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
• MILCON Line Item 0207229F: <i>Combat Rescue Helicopter</i>	-	5.900	15.500	-	15.500	4.050	16.318	-	4.290	0.000	46.058
• APAF 04 Line Item H060WH: <i>Combat Rescue Helicopter</i>	-	660.358	884.235	-	884.235	1,015.772	876.340	854.839	851.542	2,010.200	7,153.286
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 CRH 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 CRH program office will procure necessary ground and flight assets required for both DT and IOT&E. The FY20 PB added the modernization flight test aircraft increasing the program of record from 112 to 113.											
The main CRH contract includes development of the complete CRH system to include delivery of ten aircraft, associated training systems, support elements Weapon System Trainer (WST), Operational Flight Trainer (OFT), Avionics Desktop Trainer (AVDTT), Airframe Systems Trainer (AST), other maintenance Part Task Trainers, with associated spares and support equipment, as well as Type 1 training and courseware required to perform aircrew and maintenance training. An additional prime											

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<p>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 CRH modernization effort will use rapid acquisition authorities where possible to accelerate fielding of capabilities while still in production, minimizing the need for future post-production modifications.</p> <p>The current contract types for this effort are Fixed Price through Low Rate Initial Production (LRIP). 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.</p> <p>F. Performance Metrics</p> <p>Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.</p>		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Air Force												Date: February 2019			
Appropriation/Budget Activity 3600 / 5						R-1 Program Element (Number/Name) PE 0605229F / Combat Rescue Helicopter				Project (Number/Name) 654364 / Combat Rescue Helicopter					
Product Development (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 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
CRH aircraft development, integration, test articles, trainers, support and contractor test	C/FPIF	Sikorsky Aircraft Corporation : Stratford, CT	839.029	313.104	Dec 2017	357.001	Dec 2018	120.649	Dec 2019	-		120.649	8.150	1,637.933	-
Acquisition of additional CRH training devices	C/FFP	Logistics Services Int'l : TBD	0.000	9.000	Aug 2018	12.000	Aug 2018	5.557	Aug 2019	-		5.557	0.000	26.557	-
CRH Modernization	C/TBD	TBD : TBD	0.000	-		21.682	Aug 2019	85.024	Dec 2019	-		85.024	103.263	209.969	-
Subtotal			839.029	322.104		390.683		211.230		-		211.230	111.413	1,874.459	N/A
Support (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 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
CRH product support related to aircraft development, integration, test articles, trainers, contractor test.and	Various	Various : TBD	12.260	4.387	Jun 2018	35.701	Jun 2019	14.992	Jun 2020	-		14.992	0.368	67.708	-
Subtotal			12.260	4.387		35.701		14.992		-		14.992	0.368	67.708	N/A
Test and Evaluation (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 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
CRH 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	10.403	9.000	Dec 2017	11.400	Dec 2018	11.700	Dec 2019	-		11.700	1.000	43.503	-
Subtotal			10.403	9.000		11.400		11.700		-		11.700	1.000	43.503	N/A

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Management Services (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 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
CRH A&AS Support	C/CPFF	EPASS : Dayton, OH	18.131	5.278	Mar 2018	5.558	Mar 2019	5.725	Mar 2020	-		5.725	0.000	34.692	-
CRH Other PMA	Various	Various : Various	6.379	1.261	Dec 2017	2.310	Dec 2018	3.400	Dec 2019	-		3.400	0.200	13.550	-
Subtotal			24.510	6.539		7.868		9.125		-		9.125	0.200	48.242	N/A
			Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			886.202	342.030		445.652		247.047		-		247.047	112.981	2,033.912	N/A

Remarks

FINANCIAL PERFORMANCE: CRH is evaluated against traditional Research and Development (R&D) program expenditure benchmarks. Unlike many traditional R&D programs, however, the CRH 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.

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 Air Force	Date: February 2019
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Appropriation/Budget Activity 3600 / 5	R-1 Program Element (Number/Name) PE 0605229F / <i>Combat Rescue Helicopter</i>	Project (Number/Name) 654364 / <i>Combat Rescue Helicopter</i>
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	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024			
	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
<i>Combat Rescue Helicopter EMD Schedule</i>																												
CRH EMD Development																												
CRH Training System EMD Development																												
CRH Test and Evaluation																												
Developmental Test and Evaluation																												
Milestone C																												
Required Assets Available for Initial Operational Capability																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2020 Air Force			Date: February 2019
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Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Combat Rescue Helicopter EMD Schedule</i>				
CRH EMD Development	1	2018	4	2023
CRH Training System EMD Development	1	2018	1	2021
CRH Test and Evaluation	1	2018	4	2021
Developmental Test and Evaluation	4	2018	1	2021
Milestone C	4	2019	4	2019
Required Assets Available for Initial Operational Capability	4	2020	4	2020