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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 7: Operational Systems Development</i>	<b>R-1 Program Element (Number/Name)</b> PE 0207136F / <i>Manned Destructive Suppression</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	-	13.609	15.521	14.960	0.000	14.960	16.094	16.383	16.677	16.984	Continuing	Continuing
674595: <i>F-16 HARM Targeting Sys</i>	-	13.609	15.521	14.960	0.000	14.960	16.094	16.383	16.677	16.984	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

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

The Manned Destructive Suppression (MDS) program funds the development and sustainment of the Air Force's Suppression of Enemy Air Defenses (SEAD) and Destruction of Enemy Air Defenses (DEAD) capabilities. The F-16 HARM Targeting System (HTS) is currently the only programmed reactive SEAD/DEAD capability and enables targeting the HARM missile in its most lethal 'range known' mode. The program provides F-16 Block 50/52 and Block 40/42 aircraft with the ability to employ the AN/ASQ-213 Pod. With the introduction of Pre-Planned Product Improvement (P3I) HTS Revision 7 in 2007, the AN/ASQ-213 Pod now has a precision geo-location capability to target Precision Guided Munitions (PGMs) to destroy fixed and mobile enemy air defense elements. Additionally, by relocating the AN/ASQ-213 HTS R7 Pod to the aircraft's left inlet hard point, the F-16 can simultaneously carry the HTS R7 Pod and an Advanced Targeting Pod (ATP). HTS R7 fielding is complete and represents the Air Force's near-term solution for reactive time-critical targeting for DEAD until this mission can be transferred to the F-35. HTS R7 derived precision targeting data can be provided to all Joint Forces via Link-16. This effort continues upgrades for the HTS and applies technologies similar to those demonstrated in the Advanced Tactical Targeting Technologies (AT3) program and HTS R7 development.

Funds may be used to address emerging and short-notice Diminishing Manufacturing Sources and Material Shortage (DMSMS) issues.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver MDS weapon system capabilities. 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 7, Operational System Development because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.

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<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	15.238	15.521	15.792	0.000	15.792
Current President's Budget	13.609	15.521	14.960	0.000	14.960
Total Adjustments	-1.629	0.000	-0.832	0.000	-0.832
• 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	-1.200	0.000			
• SBIR/STTR Transfer	-0.429	0.000			
• Other Adjustments	0.000	0.000	-0.832	0.000	-0.832

**Change Summary Explanation**

FY 2019 reduction of \$1.200M for higher Air Force Priorities  
 FY 2019 reduction of \$0.429M for SBIR  
 FY 2021 reduction of \$0.832M for reduced mission planning requirements

<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> P3I R7 Software Upgrade (SWUP)	13.609	13.721	14.060	0.000	14.060
<b>Description:</b> HTS SWUP risk reduction and software development Engineering and Manufacturing Development(EMD) efforts include software updates in support of F-16 OFP releases. These releases improve the capability of the pod in an evolving threat environment.					
<b>FY 2020 Plans:</b> HTS SWUP 3 continues from risk reduction to software development and preparation for flight testing. Risk reduction activities for subsequent SWUP 4 upgrades will continue and transition to EMD efforts. Mission support (i.e., program management for administrative and technical support) will continue. Future upgrades will continue.					
<b>FY 2021 Base Plans:</b>					

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<b>C. Accomplishments/Planned Programs (\$ in Millions)</b>					
Begin fielding first increment of SWUP 3 and prepare for operational testing for second increment of SWUP 3. SWUP 4 EMD activities will continue. Mission support (i.e., program management for administrative and technical support) will continue. Future upgrades will continue.					
<b>FY 2021 OCO Plans:</b> N/A					
<b>FY 2020 to FY 2021 Increase/Decrease Statement:</b> Funding increased due to more planned SWUP activity in FY21; SWUP 4 EMD will be implemented in FY21.					
<b>Title:</b> Flight Test					
<b>Description:</b> Conducts test planning, requirements derivation, and post-test data analysis and reporting. Provides test organization support to include test aircraft operations, threat/test range control and associated support, air refueling, and post-mission support. Ground testing, such as anechoic chamber testing, will also be accomplished as necessary.					
<b>FY 2020 Plans:</b> Government flight test operations will continue for SWUP 3 and continue in planning for SWUP 4. This funding also includes baselining requirements from actual test data during recent flight testing.					
<b>FY 2021 Base Plans:</b> Government flight test operations will continue for SWUP 3 and SWUP 4. This funding also includes baselining requirements from actual test data during recent flight testing.					
<b>FY 2021 OCO Plans:</b> N/A					
<b>FY 2020 to FY 2021 Increase/Decrease Statement:</b> N/A					
<b>Title:</b> Mission Planning					
<b>Description:</b> Joint Mission Planning System (JMPS). This effort includes continued development and testing of candidate upgrades and incremental engineering releases in support of HTS SWUP fielding.					
<b>FY 2020 Plans:</b>					
	0.000	0.900	0.900	0.000	0.900
	0.000	0.900	0.000	0.000	0.000

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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
Continue mission planning in support of HTS SWUP 4 and future upgrades. <b>FY 2021 Base Plans:</b> N/A <b>FY 2021 OCO Plans:</b> N/A <b>FY 2020 to FY 2021 Increase/Decrease Statement:</b> Funding decreased due to no currently planned mission planning activities (no new SWUP candidates) scheduled for FY21.					
<b>Accomplishments/Planned Programs Subtotals</b>	13.609	15.521	14.960	0.000	14.960

**D. Other Program Funding Summary (\$ in Millions)**

N/A

**Remarks**

**E. Acquisition Strategy**

The HTS R7 Software Update Program (SWUP) is underway to keep the HTS pod capable in a growing threat environment. The SWUP 3 Risk Reduction (RR) contract was awarded in December 2015 as a Cost-Plus-Fixed-Fee (CPFF) contract type. The SWUP 3 RR development effort completed in March 2019.

The SWUP 3 Engineering & Manufacturing Development (EMD) and SWUP 4 RR contract awarded in April 2019 as a CPFF contract type and is a 36 month effort. The SWUP 3 EMD portion includes plans for two releases to the field, Builds A and B. The SWUP 4 RR portion will mature candidates for future software builds by addressing findings from the field, incorporating requested improvements from the warfighter, and implementing other software changes to keep the HTS pod updated and mission capable.

The SWUP 4 EMD contract is planned for award in March 2020. This contract plans for two releases to the field, Build A and Build B.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Air Force												Date: February 2020			
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)							
3600 / 7				PE 0207136F / Manned Destructive Suppression				674595 / F-16 HARM Targeting Sys							
<b>Product Development (\$ in Millions)</b>				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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
HTS R7 SWUP/P3I	SS/CPFF	Raytheon Systems Co. : Tucson, AZ	-	11.574	Apr 2019	11.817	Apr 2020	12.130	Apr 2021	-		12.130	Continuing	Continuing	-
JMPS	SS/CPIF	Multiple : Multiple	-	-		0.900	May 2020	-		-		-	Continuing	Continuing	-
<b>Subtotal</b>			-	11.574		12.717		12.130		-		12.130	Continuing	Continuing	N/A
<b>Test and Evaluation (\$ in Millions)</b>				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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
Government Test	PO	412 TW : Edwards AFB, CA	-	-		0.900	Aug 2020	0.900	Nov 2020	-		0.900	Continuing	Continuing	-
<b>Subtotal</b>			-	-		0.900		0.900		-		0.900	Continuing	Continuing	N/A
<b>Management Services (\$ in Millions)</b>				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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
Program Management Administration	C/Various	Multiple : Eglin AFB, FL	-	2.035	Jul 2019	1.904	Jul 2020	1.930	Jun 2021	-		1.930	Continuing	Continuing	-
<b>Subtotal</b>			-	2.035		1.904		1.930		-		1.930	Continuing	Continuing	N/A
<b>Project Cost Totals</b>			-	13.609		15.521		14.960		-		14.960	Continuing	Continuing	N/A
<b>Remarks</b>															

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<b>Exhibit R-4, RDT&amp;E Schedule Profile:</b> PB 2021 Air Force		<b>Date:</b> February 2020
<b>Appropriation/Budget Activity</b> 3600 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0207136F / <i>Manned Destructive Suppression</i>	<b>Project (Number/Name)</b> 674595 / <i>F-16 HARM Targeting Sys</i>

	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><i>Manned Destructive Suppression</i></b>																												
SWUP 3 Risk Reduction																												
SWUP 3 Build A																												
SWUP 3 Build B																												
SWUP 4 Risk Reduction																												
SWUP 4 Build A																												
SWUP 4 Build B																												

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2021 Air Force		<b>Date:</b> February 2020
<b>Appropriation/Budget Activity</b> 3600 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0207136F / <i>Manned Destructive Suppression</i>	<b>Project (Number/Name)</b> 674595 / <i>F-16 HARM Targeting Sys</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b><i>Manned Destructive Suppression</i></b>				
SWUP 3 Risk Reduction	1	2019	2	2019
SWUP 3 Build A	3	2019	3	2020
SWUP 3 Build B	3	2019	3	2021
SWUP 4 Risk Reduction	3	2019	2	2022
SWUP 4 Build A	3	2020	3	2022
SWUP 4 Build B	3	2021	4	2023