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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 7: Operational Systems Development					R-1 Program Element (Number/Name) PE 0606942F I Assessments and Evaluations Cyber Vulnerabilities							
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	-	0.000	87.800	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	87.800
677821: Cyberspace Vulnerability Assessment	-	0.000	87.800	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	87.800
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

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

This program funds cyber vulnerability assessments of Air Force weapons systems and critical infrastructure as well as non-recurring engineering for mitigations. The effort leverages the methodology described in the Air Force Cyber Campaign Plan (CCP) to provide Air Force mission assurance in a cyber-contested environment. Under the Air Force CCP, the Air Force is accomplishing work mandated by Section 1647 of the Fiscal Year (FY) 2016 National Defense Authorization Act (NDAA) and Section 1650 of the FY 2017 NDAA. Section 1647 of the FY 2016 NDAA directs the Secretary of Defense to complete an evaluation of the cyber vulnerabilities of each major weapon system of the Department of Defense. Section 1650 of the FY 2017 NDAA mandates the Secretary of Defense submit a plan for assessing the cyber vulnerability of critical defense infrastructure and begin assessments of this infrastructure. This funding focuses on aspects of the Air Force CCP that develop processes, products, and people to perform the short term goals of conducting system cyber vulnerability assessments, cyber mitigations, and pilot programs and work toward the long term goal of achieving an enduring cyber resilient Air Force. The program builds upon existing efforts regarding the identification and mitigation of cyber vulnerabilities, and does not duplicate similar ongoing efforts or conduct redundant assessments on systems that have already been evaluated.

In CY 2019 Assessments and Evaluations Cyber Vulnerabilities was a new start.

In addition, this program element may include necessary civilian pay expenses required to manage, execute, and deliver weapon system capability. It may also include necessary civilian pay expenses required to perform analysis and developmental activities required in support of the transition of weapon system capability. The use of such program funds would 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 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. Program Change Summary (\$ in Millions)		FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Previous President's Budget		0.000	99.100	0.000	0.000	0.000
Current President's Budget		0.000	87.800	0.000	0.000	0.000
Total Adjustments		0.000	-11.300	0.000	0.000	0.000
• Congressional General Reductions		0.000	0.000			
• Congressional Directed Reductions		0.000	-11.300			
• 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		0.000	0.000			
• Other Adjustments		0.000	0.000	0.000	0.000	0.000
Change Summary Explanation Decrease in FY 2019 due to a Congressional directed reduction in the Department of Defense Appropriation Act 2019 for unjustified growth in infrastructure assessments.						
C. Accomplishments/Planned Programs (\$ in Millions)				FY 2018	FY 2019	FY 2020
Title: Address Weapon System Cyber Vulnerabilities				0.000	39.466	0.000
Description: Develop processes, products, and people to conduct weapon system cyber vulnerability assessments, cyber mitigations, demonstrations, and pilot programs toward the long term goal of achieving an enduring cyber resilient Air Force.						
FY 2019 Plans: Conduct weapon systems cyber vulnerability assessments and prototype mitigations.						
FY 2020 Plans: N/A						
FY 2019 to FY 2020 Increase/Decrease Statement: FY 2020 decreased compared to FY 2019 by \$39.466 million. Funding decreased due to higher Department of Defense priorities.						
Title: Address Infrastructure Cyber Vulnerabilities				0.000	44.334	0.000
Description: Develop processes, products, and people to conduct infrastructure/control systems/Operational Technology cyber vulnerability assessments, cyber mitigations, demonstrations, and pilot programs toward the long term goal of achieving an enduring cyber resilient Air Force.						
FY 2019 Plans:						

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<b>C. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2018</b>	<b>FY 2019</b>	<b>FY 2020</b>
Conduct infrastructure cyber vulnerability assessments. Develop prototype mitigations. Initiate the infrastructure cyber pilot program.  <b>FY 2020 Plans:</b> N/A  <b>FY 2019 to FY 2020 Increase/Decrease Statement:</b> FY 2020 decreased compared to FY 2019 by \$44.334 million. Funding decreased due to higher Department of Defense priorities.				
<b>Title:</b> Exercise Participation  <b>Description:</b> This effort supports exercise participation, Combatant Command support, and assessment team activities to validate candidate weapon system and infrastructure cyber vulnerabilities.  <b>FY 2019 Plans:</b> Participate in USSTRATCOM and other Combatant Command exercises. Validate Air Force weapon system and infrastructure cyber vulnerabilities.  <b>FY 2020 Plans:</b> N/A  <b>FY 2019 to FY 2020 Increase/Decrease Statement:</b> FY 2020 decreased compared to FY 2019 by \$4.000 million. Funding decreased due to higher Department of Defense priorities.		0.000	4.000	0.000
<b>Accomplishments/Planned Programs Subtotals</b>		0.000	87.800	0.000
<b>D. Other Program Funding Summary (\$ in Millions)</b> N/A  <b>Remarks</b>  <b>E. Acquisition Strategy</b> When possible, activities in this effort will leverage current competitively-awarded contracts. Additional necessary contracts funded in this program element will be awarded using either competitive or sole source procedures, whichever is most appropriate.  <b>F. Performance Metrics</b> 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.				

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Air Force												Date: February 2019			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0606942F / Assessments and Evaluations Cyber Vulnerabilities				Project (Number/Name) 677821 / Cyberspace Vulnerability Assessment					
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
Weapon Systems Prototype Mitigations	TBD	Various : TBD	-	0.000		19.300	Jan 2019	-		-		-	0.000	19.300	-
More Situational Awareness for Industrial Control Systems (MOSAICS) Joint Capability Technology Demonstration	MIPR	Various : TBD	-	0.000		3.000	Jan 2019	-		-		-	0.000	3.000	-
Subtotal			-	0.000		22.300		-		-		-	0.000	22.300	N/A
Remarks															
In FY 2019, the Office of the Undersecretary of Defense for Acquisition, Technology, and Logistics transitioned the responsibility of funding NDAA 1647 and 1650 activities directly to the Services.															
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
Exercise and Assessment Team Participation	TBD	Various : TBD	-	0.000		4.000	Jan 2019	-		-		-	0.000	4.000	-
Subtotal			-	0.000		4.000		-		-		-	0.000	4.000	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
Weapon Systems Cyber Vulnerability Assessments	MIPR	Various : TBD	-	0.000		20.166	Jan 2019	-		-		-	0.000	20.166	-
Critical Infrastructure Assessments	MIPR	Various : TBD	-	0.000		41.334	Jan 2019	-		-		-	0.000	41.334	-
Subtotal			-	0.000		61.500		-		-		-	0.000	61.500	N/A

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			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			-	0.000		87.800		-		-		-	0.000	87.800	N/A

Remarks

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<b>Exhibit R-4, RDT&amp;E Schedule Profile:</b> PB 2020 Air Force			<b>Date:</b> February 2019		
<b>Appropriation/Budget Activity</b> 3600 / 7		<b>R-1 Program Element (Number/Name)</b> PE 0606942F / <i>Assessments and Evaluations Cyber Vulnerabilities</i>			<b>Project (Number/Name)</b> 677821 / <i>Cyberspace Vulnerability Assessment</i>

	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
<b><i>Cyberspace Vulnerability Assessment</i></b>																												
Conduct cyber vulnerability assessments for weapon systems																												
Develop and assess prototype weapon system cyber mitigations																												
Conduct Category 1 cyber vulnerability assessments for infrastructure																												
Conduct Category 2 cyber vulnerability assessments for infrastructure																												
Develop and assess infrastructure prototype cyber mitigations																												
Participate in exercises and red team activities																												

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2020 Air Force			<b>Date:</b> February 2019
<b>Appropriation/Budget Activity</b> 3600 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0606942F / <i>Assessments and Evaluations Cyber Vulnerabilities</i>	<b>Project (Number/Name)</b> 677821 / <i>Cyberspace Vulnerability Assessment</i>	

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b><i>Cyberspace Vulnerability Assessment</i></b>				
Conduct cyber vulnerability assessments for weapon systems	1	2019	4	2020
Develop and assess prototype weapon system cyber mitigations	1	2019	4	2020
Conduct Category 1 cyber vulnerability assessments for infrastructure	2	2019	2	2020
Conduct Category 2 cyber vulnerability assessments for infrastructure	4	2019	4	2020
Develop and assess infrastructure prototype cyber mitigations	1	2019	4	2020
Participate in exercises and red team activities	1	2019	4	2020