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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 4: Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 Program Element (Number/Name)</b> PE 0305251F / <i>Cyberspace Operations Forces and Force Support</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	-	0.000	35.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	35.000
646008: <i>US Cyber Command Technology Development</i>	-	0.000	35.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	35.000
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-	-	-

**Note**  
In FY2021, PE 0305251F, Cyberspace Operations Force and Force Support, Project 646008, US Cyber Command Technology Development, efforts were transferred to PE 0208087F, Distributed Cyber Warfare Operations, Project 674540, Cyber Tech Projects - Payloads to consolidate prototyping and development of cyber payload capabilities.

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

Foundational Tools provide advanced cyber warfare capabilities to the Air Force Cyber Mission Forces in direct support of US Cyber Command (USCYBERCOM), AF Major Commands (MAJCOMs), unified commands, and national agency cyber warfighting requirements. Activities within the program deliver operations-ready cyberspace superiority capabilities through the research, development, testing, evaluation, accelerated prototyping, demonstration, and fielding of cyber technologies and capabilities. This program enables Combatant Commanders the ability to operate in and through cyberspace to manipulate, disrupt, deny, degrade, or destroy targeted computers, information systems, and networks.

Capabilities prototyped and developed in this program are incorporated into the Air Force Distributed Cyber Warfare Operations (DCWO) portfolio. The DCWO portfolio enables delivery of cyber effects to Combatant Commanders to include cyber operational preparation of the environment, offensive counter-cyber, cyber-attack, electronic warfare operations, mission planning, intelligence, cybersecurity products and services and Command and Control/Situational Awareness (C2SA) tools needed to attack enemy networks, telephony, Integrated Air Defense Systems (IADS), command and control systems, and create cyber effects through the Electromagnetic Spectrum (EMS).

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

This effort is in Budget Activity 4, Advanced Component Development and Prototypes (ACD&P), because efforts are necessary to evaluate integrated technologies, representative modes or prototype systems in a high fidelity and realistic operating environment.

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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	0.000	35.000	43.000	0.000	43.000
Current President's Budget	0.000	35.000	0.000	0.000	0.000
Total Adjustments	0.000	0.000	-43.000	0.000	-43.000
• 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	0.000	0.000			
• Other Adjustments	0.000	0.000	-43.000	0.000	-43.000

<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>
<p><b>Title:</b> CMF Foundational Tools</p> <p><b>Description:</b> The CMF Foundational Tools program develops a family of foundational cyber tool prototypes at scale ready for integration and operational test in the Distributed Cyber Warfare Operations (DCWO) portfolio. This effort equips the Air Force portion of the Cyber Mission Force support strategy, and significantly leverages joint partnerships with US Cyber Command, other service development offices, and other government agencies. Details of specific tool development efforts are classified and will be provided on a need to know basis. For further information please contact AFLCMC/HNCO, 210-925-6614.</p> <p><b>FY 2020 Plans:</b></p> <ul style="list-style-type: none"> <li>- Expand FY18-FY19 USCYBERCOM-funded efforts to produce prioritized family of foundational tools.</li> <li>- Develop additional tool development software factories.</li> <li>- Transition and integrate available prototype tool kits to DCWO portfolio.</li> <li>- Deliver prototype tools into USCYBERCOM architecture to ensure interoperability.</li> <li>- Develop automated testing and information assurance support tools.</li> </ul> <p><b>FY 2021 Base Plans:</b></p>	0.000	35.000	0.000	0.000	0.000

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<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 4: Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 Program Element (Number/Name)</b> PE 0305251F / <i>Cyberspace Operations Forces and Force Support</i>
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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
Refer to PE 0208087F, Project 67451. -In FY2021 Project 64008 transferred to PE 0208087F, Project 67451, Cyber Tech Projects - Payloads  <b>FY 2021 OCO Plans:</b> N/A  <b>FY 2020 to FY 2021 Increase/Decrease Statement:</b> See PE 0208087F for further details on funding.					
<b>Accomplishments/Planned Programs Subtotals</b>	0.000	35.000	0.000	0.000	0.000

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

N/A

**Remarks**

**E. Acquisition Strategy**

The CMF foundational tools program is aligned within the Distributed Cyber Warfare Operations (DCWO) program office. This program serves to create foundational tool prototypes at scale to enable the DCWO program office to quickly integrate and transition those tools into available operational capability. The foundational tools program office will utilize Concept, Development, Risk Management, Production, or Deployment Plans as part of a streamlined approach to acquisition planning. All plans will contain sufficient information for the Milestone Decision Authority (MDA) to determine readiness to enter into the applicable phase of the acquisition process. Foundational Tools prototyping efforts will be used in conjunction with the DCWO program to buy-down acquisitions risk and identify both new large-scale foundational efforts as well as short projects to leverage government and commercial solutions. The program will utilize both new and existing contractual vehicles, such as Government-Wide Acquisition Contract (GWAC) vehicles (Alliant, Encore II, Solutions for Enterprise-Wide Procurement IV (SEWP IV)), and General Services Administration (GSA) Federal Supply Schedules and a Cyber Indefinite Delivery Indefinite Quantity (IDIQ) contract. The use of multiple-award contractual vehicles will provide a wide range of commercially-available products and services that should be able to meet many requirements related to Offensive Cyberspace Operations. These multiple-award contractual vehicles have already met the statutory requirements of the Competition in Contracting Act (CICA), which requires a fair opportunity to all contract holders, in accordance with Federal Acquisition Regulation (FAR) 16.505, unless an exception to fair opportunity applies.

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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 / 4				PE 0305251F / Cyberspace Operations Forces and Force Support				646008 / US Cyber Command Technology Development							
<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
CMF Foundational Tool Development	Various	Various : Various	-	-		22.200	Jan 2020	-		-		-	0.000	22.200	-
Interoperability Development	Various	Various : Various	-	-		3.100	Feb 2020	-		-		-	0.000	3.100	-
Automated Test Development	Various	Various : Various	-	-		3.000	Jan 2020	-		-		-	0.000	3.000	-
<b>Subtotal</b>			-	-		28.300		-		-		-	0.000	28.300	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
CMF Foundational Tool Testing	MIPR	47 CTS : San Antonio, TX	-	-		2.900	Jan 2020	-		-		-	0.000	2.900	-
<b>Subtotal</b>			-	-		2.900		-		-		-	0.000	2.900	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
CMF Foundational Tool PSC (A&AS, FFRDC)	C/Various	Various : Various	-	-		3.800	Jan 2020	-		-		-	0.000	3.800	-
<b>Subtotal</b>			-	-		3.800		-		-		-	0.000	3.800	N/A
<b>Project Cost Totals</b>			-	-		35.000		-		-		-	0.000	35.000	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 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0305251F / <i>Cyberspace Operations Forces and Force Support</i>	<b>Project (Number/Name)</b> 646008 / <i>US Cyber Command Technology Development</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>CMF Foundational Tools</b>																												
CMF Foundational Tool Development																												
Interoperability Development																												
Automated Test Development																												

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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 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0305251F / <i>Cyberspace Operations Forces and Force Support</i>	<b>Project (Number/Name)</b> 646008 / <i>US Cyber Command Technology Development</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>CMF Foundational Tools</b>				
CMF Foundational Tool Development	2	2020	4	2021
Interoperability Development	2	2020	4	2021
Automated Test Development	2	2020	4	2021

**Note**

See continuation of effort in PE 0208087F.