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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 0101316F / <i>Worldwide Joint Strategic Communications</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	-	17.767	26.177	27.235	0.000	27.235	15.430	2.497	2.542	2.589	Continuing	Continuing
671820: <i>Strategic Automated Command and Control System</i>	-	17.767	26.177	27.235	0.000	27.235	15.430	2.497	2.542	2.589	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

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

Worldwide Joint Strategic Communication efforts include Nuclear Command, Control, and Communications (NC3) systems to include the Defense Injection Reception Emergency Action Message (EAM) C2 Terminals (DIRECT), Aircrew Alerting Communications Electromagnetic Pulse (AACE), the Strategic Emergency Action Transmission System (SEATS), the Defense Red Switch Network (DRSN), and the Strategic Automated Command and Control System (SACCS). Funding may be used to modernize these, and other, NC3 systems. Funding may also be used for research, testing, validation, certification, configuration management, and assessment of the Air Force NC3 Weapon System.

SACCS is a dedicated, high speed, multi-level secure, data transmission, processing, and display system. SACCS provides the primary non-survivable command and control capability for receiving and disseminating secure Emergency Action Messages (EAM), Force Direction Messages (FDM), Force Status Reporting (FSR), and exchanging information type messages from USSTRATCOM. SACCS provides messages for effective deployment of strategic bombers, reconnaissance aircraft, mobilization aircraft, tanker support aircraft, and the Intercontinental Ballistic Missile (ICBM) force.

SACCS has equipment that has reached its end of life and is no longer repairable due to diminished manufacturing sources and parts obsolescence. This jeopardizes Air Force Global Strike Command's (AFGSC) ability to meet mission requirements as required by Chairman Joint Chief of Staff Nuclear Technical Performance Criteria and Operational Standards (CJCSI 6811.01). In order to mitigate the risk of SACCS inability to operate once the current spares are completely diminished, and ensure the system remains secure against modern/future threats, the Air Force is developing a replacement system.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver NC3 Development capability. The use of such program funds would be in addition to the civilian pay expenses budgeted in program element 0605831F or 0605833F.

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	18.442	18.177	27.284	0.000	27.284
Current President's Budget	17.767	26.177	27.235	0.000	27.235
Total Adjustments	-0.675	8.000	-0.049	0.000	-0.049
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	8.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	-0.675	0.000	-0.049	0.000	-0.049

**Congressional Add Details (\$ in Millions, and Includes General Reductions)**

**Project:** 671820: Strategic Automated Command and Control System

Congressional Add: NC3 Architecture

	<b>FY 2019</b>	<b>FY 2020</b>
Congressional Add Subtotals for Project: 671820	7.707	8.000
Congressional Add Totals for all Projects	7.707	8.000

**Change Summary Explanation**

FY20 Congressional Add for NC3 architecture development

**C. Accomplishments/Planned Programs (\$ in Millions)**

	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021</b>
<b>Title:</b> SACCS Replacement	10.060	18.177	27.235
<b>Description:</b> Design and develop replacement Strategic Automated Command Control System (SACCS). Transition architecture from Time Division Multiplexing to Internet Protocol (TDM-IP). Replace legacy components with supportable networking and information system hardware. The new system will mitigate cybersecurity risks, improves Mean Time Between Failure rates, reliability, availability, improves user interface, decreases annual sustainment costs, addresses Diminishing Manufacturing Sources and Material Shortages and obsolescence challenges, and meets Chairman Joint Chiefs of Staff Nuclear Technical Performance Criteria and Operational Standards (CJCSI 6811.01).			
<b>FY 2020 Plans:</b> -Award contract for TMD-IP effort			

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<b>C. Accomplishments/Planned Programs (\$ in Millions)</b>	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021</b>
<p>-Continue Technology Maturation and Risk Reduction efforts to include a temporary modification to address near-term obsolescence issues.</p> <p>-Initiate transition of TDM circuits to IP circuits through DISA process for establishing new circuits. Order circuits through DISA Storefront.</p> <p>-Develop interim system and network architecture to replace obsolete Promina networking equipment and OMNI cryptographic devices. Order HAIPES, serial to IP adaptors, routers, and associated networking equipment.</p> <p>-Develop Risk Management Framework implementations for temporary modifications and full SACCS-R implementation.</p> <p>-Conduct Test Readiness Review (TRR). Initiate testing of interim IP solution to address Promina/OMNI obsolescence issues-</p> <p>Develop requirements specifications for implementation of a Network Operations Center/Security Operations Center (NOC/SOC) to support monitoring and protection of the IP network and components.</p> <p>-Initiate system solution to address multi-level security requirement.</p> <p>-Develop an updated interface to the Navy Modernized Hybrid Solution (NMHS).</p> <p>-Purchase new port expansions processors to support TDM-IP effort</p> <p><b><i>FY 2021 Plans:</i></b></p> <p>-Continue Technology Maturation and Risk Reduction efforts to include a temporary modification to address near-term obsolescence issues.</p> <p>-Conduct site modification of SACCS desktop terminals to implement the IP transition.</p> <p>-Conduct testing on the temporary modification and transition existing SACCS desktop and portable terminals to an IP network.</p> <p>-Continue development of NOC/SOC and initiate testing of TDM-IP systems with the NOC/SOC</p> <p>-Continue development of the system solution to address the multi-level security requirement.</p> <p>-Initiate development of modifications to the HAC/RMPE, and the Launch Control Center (LCC) end user terminal to support SACCS-R implementation.</p> <p>-Start design of updated NMHS interface changes.</p> <p>-Initiate preliminary design for the modifications to the Missile Procedure Trainer (MPT) to support SACCS-R implementation at the LCCs.</p> <p>-Initiate purchases of development hardware to support replacement of obsolescent equipment at the SACCS Operation Center.</p> <p>-Initiate software development effort for modernization of SACCS terminals and SACCS Operations Center</p> <p><b><i>FY 2020 to FY 2021 Increase/Decrease Statement:</i></b></p> <p>FY21 increase due to accelerated efforts to implement temporary modification to support interim TDM-IP transition/OMNI replacement to include site modifications, the NOC/SOC, restart of HAC/RMPE design efforts, continuing multi-level security efforts, increased effort on NMHS interface, and MPT design. DoD CIO mandate has compressed work schedule to mitigate</p>			

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<b>C. Accomplishments/Planned Programs (\$ in Millions)</b>	FY 2019	FY 2020	FY 2021
operational risk on the system. Failure to execute work within the new timeline will result in 5-to-1 cost increase in sustainment costs.			
<b>Accomplishments/Planned Programs Subtotals</b>	10.060	18.177	27.235

	FY 2019	FY 2020
<b>Congressional Add:</b> NC3 Architecture	7.707	8.000
<b>FY 2019 Accomplishments:</b> - Provided AFGSC innovation and analysis capability through Modeling and Simulation activities, Airman development, leadership development, and Concept for Force Development activities - Provided analysis capability to fund access to FFRDCs and UARCs for AFGSC Decision Support - Developed NC3 200/300 courseware for Airman		
<b>FY 2020 Plans:</b> - Provided AFGSC innovation and analysis capability through Modeling and Simulation activities, Airman development, leadership development, and Concept for Force Development activities - Provided analysis capability to fund access to FFRDCs and UARCs for AFGSC Decision Support - Continued development of NC3 200/300 courseware for Airman - Standing up StrikeWERX node (innovation center) at the Cyber Innovation Facility (CIC) complex		
<b>Congressional Adds Subtotals</b>	7.707	8.000

<b>D. Other Program Funding Summary (\$ in Millions)</b>											
<u>Line Item</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u> <u>Base</u>	<u>FY 2021</u> <u>OCO</u>	<u>FY 2021</u> <u>Total</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• OPAF 03 PE 0101316F: <i>Strategic Command and Control (833140)</i>	2.979	0.300	24.520	-	24.520	31.895	0.258	0.263	0.268	Continuing	Continuing

**Remarks**

**E. Acquisition Strategy**  
 Programmed funds continue to support TMRR efforts including a temporary modification to address near-term obsolescence issues (TDM-IP). The program is using a task order under the ICBM Ground Subsystems Support Contract and organic support from the 595 SCS and the 309 SWEG to conduct TMRR efforts.

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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 0101316F / Worldwide Joint Strategic Communications				671820 / Strategic Automated Command and Control System							
Product Development (\$ in Millions)				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
Product Development	C/CPAF	Not specified. : TBD	-	-		-		-		-		-	Continuing	Continuing	-
SACCS-R TMRR	SS/CPFF	Northrop Grumman : Layton, UT	-	4.445	Jan 2019	12.482	Nov 2019	16.998	Nov 2020	-		16.998	Continuing	Continuing	-
SACCS-R TMRR Organic	PO	OO-ALC : Hill AFB, UT	-	1.422	Jan 2019	-		-		-		-	Continuing	Continuing	-
SACCS-R EMD Organic	PO	OO-ALC : Hill AFB, UT	-	-		-		-		-		-	Continuing	Continuing	-
<b>Subtotal</b>			-	5.867		12.482		16.998		-		16.998	Continuing	Continuing	N/A
Support (\$ in Millions)				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
Support	C/CPAF	Not specified. : TBD	-	-		-		-		-		-	Continuing	Continuing	-
SACCS-R Engineering Development	Various	Various : Various	-	1.244	Oct 2018	1.681	Nov 2019	1.576	Nov 2020	-		1.576	Continuing	Continuing	-
NC3 Architecture Development	Various	Various : Various	-	7.707	Feb 2019	8.000		-		-		-	Continuing	Continuing	-
<b>Subtotal</b>			-	8.951		9.681		1.576		-		1.576	Continuing	Continuing	N/A
Test and Evaluation (\$ in Millions)				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
Test and Evaluation	C/CPAF	Not specified. : TBD	-	-		-		-		-		-	Continuing	Continuing	-
SACCS-R Development Test & Evaluation	Various	Various : Various	-	0.689	Jan 2019	0.796	Nov 2019	4.102	Nov 2020	-		4.102	Continuing	Continuing	-
<b>Subtotal</b>			-	0.689		0.796		4.102		-		4.102	Continuing	Continuing	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 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0101316F / <i>Worldwide Joint Strategic Communications</i>	<b>Project (Number/Name)</b> 671820 / <i>Strategic Automated Command and Control System</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			
Management Services	C/CPAF	Not specified. : TBD	-	-		-		-		-		-	Continuing	Continuing	-
SACCS-R Program Management Administration	Various	Various : Various	-	1.284	Nov 2018	1.752	Jan 2020	3.419	Jan 2021	-		3.419	Continuing	Continuing	-
SACCS-R Integration Support	C/FFP	BAE Systems, Inc. : Hill AFB, UT	-	0.976	Jan 2019	1.466	Jan 2020	1.140	Jan 2021	-		1.140	Continuing	Continuing	-
<b>Subtotal</b>			-	2.260		3.218		4.559		-		4.559	Continuing	Continuing	N/A

**Remarks**  
 Costs and services in support of program office management and administration processes such as: program oversight, resource justification, budget and programming, milestone and scheduling--PMA costs.

	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
<b>Project Cost Totals</b>	-	17.767	26.177	27.235	-	27.235	Continuing	Continuing	N/A

**Remarks**

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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 0101316F / <i>Worldwide Joint Strategic Communications</i>	<b>Project (Number/Name)</b> 671820 / <i>Strategic Automated Command and Control System</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>Strategic Automated Command and Control System</b>	
SACCS-R Technology Maturation/Risk Reduction	[Redacted]
SACCS-R TDM-IP 1.1	[Redacted]
SACCS-R TDM-IP 1.1 Decision to Retain	[Redacted]
SACCS-R TDM-IP 1.2	[Redacted]
SACCS-R TDM-IP 1.2 Decision to Retain	[Redacted]
SACCS-R ARES 2.0	[Redacted]
SACCS-R PDR ( 3Qtr FY24)	[Redacted]
SACCS-R Milestone B (3Qtr FY24)	[Redacted]
SACCS-R Engineering and Manufacturing Development (4Qtr FY24 through 1Qtr FY27 )	[Redacted]
SACCS-R CDR (3Qtr FY25)	[Redacted]

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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 0101316F / <i>Worldwide Joint Strategic Communications</i>	<b>Project (Number/Name)</b> 671820 / <i>Strategic Automated Command and Control System</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b><i>Strategic Automated Command and Control System</i></b>				
SACCS-R Technology Maturation/Risk Reduction	1	2019	3	2024
SACCS-R TDM-IP 1.1	1	2019	1	2022
SACCS-R TDM-IP 1.1 Decision to Retain	1	2022	1	2022
SACCS-R TDM-IP 1.2	2	2022	3	2023
SACCS-R TDM-IP 1.2 Decision to Retain	3	2023	3	2023
SACCS-R ARES 2.0	4	2023	3	2024
SACCS-R PDR ( 3Qtr FY24)	3	2024	3	2024
SACCS-R Milestone B (3Qtr FY24)	3	2024	3	2024
SACCS-R Engineering and Manufacturing Development (4Qtr FY24 through1Qtr FY27 )	4	2024	4	2025
SACCS-R CDR (3Qtr FY25)	3	2025	3	2025