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Exhibit R-2, RDT&E Budget Item Justification: PB 2021 Air Force **Date:** February 2020

Appropriation/Budget Activity 3620F: <i>Research, Development, Test & Evaluation, Space Force / BA 8: Software and Digital Technology Pilot Programs</i>	R-1 Program Element (Number/Name) PE 1203614SF / <i>Space C2</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	0.000	149.742	-	149.742	156.446	152.350	120.260	121.129	Continuing	Continuing
68A035: <i>SSA/BMC2</i>	-	0.000	0.000	149.742	-	149.742	156.446	152.350	120.260	121.129	Continuing	Continuing

Program MDAP/MAIS Code: N82

A. Mission Description and Budget Item Justification

In FY 2021, PE 1203614F, JSpOC Mission System, Project 67A035, Enterprise Space BMC2 efforts were transferred to Appropriation 3620, Research, Development, Test & Evaluation, Space Force, Budget Activity 08, PE 1203614SF, Space C2 from Appropriation 3600, Budget Activity 07 due to the creation of a new Appropriation for Space Force and a new Budget Activity for Software and Digital Technology Pilot Programs.

This effort is not a new start. The FY 2018 NDAA Sections 873/874 directed OSD to streamline software development. Space Command and Control (C2) is an OSD pilot initiative in which all lifecycle funding will be tracked under BA08, Software and Digital Technology Pilot Programs. Pilot programs will test the ability to execute modern software development practices encompassing development, procurement, modification and maintenance activities. The Space C2 pilot program in PE 1203614SF, RDT&E, Space Force, BA08 includes funds transferred from PE 1203614F, JSpOC Mission Systems (RDT&E and SPAF), Air Force and Operations and Maintenance, Air Force.

The Space Force is developing a Space Command and Control (Space C2) and Space Situational Awareness (SSA) capability for the Combined Force Space Component Commander (CFSCC). The enterprise-wide system will provide a common government infrastructure and standards for rapid prototyping of dynamic SSA and Battle Management Command and Control (BMC2) applications to address the evolving and dynamic threat. The system will provide a collaborative environment that will enhance and modernize SSA and BMC2 capabilities; create decision-relevant views of the space environment; rapidly detect, track and characterize objects of interest; identify / exploit traditional and non-traditional sources; perform space threat analysis; and enable efficient distribution of data across the Space Surveillance Network (SSN). Funding includes technical studies, development, experimentation, integration and related support costs.

Space acquisition must respond with speed and agility to emerging adversary threats. Space & Missile Systems Center (SMC) is transforming the organization and implementation of space acquisition to an enterprise approach, maximizing innovation and resiliency, leveraging international, commercial, and mission partnerships, and managing program/project priorities according to an integrated unclassified/classified enterprise space architecture. Expanding the appropriate acquisition authorities and contract mechanisms to deliver capability sooner, SMC will strategically execute experimentation, prototyping, risk reduction, and other efforts to develop new or repurpose capabilities.

This Program Element may include necessary civilian pay expenses required to manage, execute, and deliver Space C2 weapon system capability. The use of such program funds would be in addition to the civilian pay expenses budgeted in Program Elements 1206392SF and 1206398SF.

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B. Program Change Summary (\$ in Millions)	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Previous President's Budget	0.000	0.000	0.000	-	0.000
Current President's Budget	0.000	0.000	149.742	-	149.742
Total Adjustments	0.000	0.000	149.742	-	149.742
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Other Adjustments	-	-	149.742	-	149.742

Change Summary Explanation

FY 2021: +\$118.654M; funds starting in FY 2021 were transferred from RDT&E, Air Force to RDT&E, Space Force.

FY 2021: +\$31.088M; funds starting in FY 2021 were transferred from Operations and Maintenance, Air Force to RDT&E, Space Force.

C. Accomplishments/Planned Programs (\$ in Millions)	FY 2019	FY 2020	FY 2021
Title: Enterprise Space BMC2	0.000	0.000	118.654
Description: This program delivers a robust and responsive Space Situational Awareness (SSA) and Battle Management Command and Control (BMC2) capability to meet emerging threats. The program will deliver capability for decision makers trying to prevent a conflict from extending to space, or winning it if it does. Capabilities and associated infrastructure include, but are not limited to, SSA, Indications & Warning (I&W), Transmit/Receive, Space Control, Tactical Operations and Common Platforms and Infrastructure, Cyber and Threat Warning. Other activities include dedicated Systems Engineering & Integration (SE&I), Test & Evaluation (T&E), Model Based Systems Engineering (MBSE) and prototype Validation & Verification to support these efforts.			
FY 2020 Plans: N/A			
FY 2021 Plans: Plan and develop a message standard compliant open architecture to support both the SSA and Battle Management Command and Control (BMC2) missions to meet dynamic emerging threats. The architecture and platform/infrastructure will modernize and deliver new capabilities in the National Space Defense Center, Combined Space Operations Center and other operations centers supporting SSA and BMC2. In addition to the architectural efforts, SMC will continue developmental, system engineering and contracting efforts to integrate best in breed commercial, contractor, and government applications through the release of multiple incremental software capability drops throughout FY 2021. Transitions legacy capabilities to an open architecture eco-system			

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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2019	FY 2020	FY 2021
employing agile software practices. Rapidly respond to implement system resiliency and situational awareness necessary to operate in the contested space domain. Activities may include, but are not limited to, program office support, studies, technical analysis, experimentation, prototyping, etc. Increase in funding from FY20-FY21 allows additional software application and platform development. FY 2020 to FY 2021 Increase/Decrease Statement: N/A			
Title: Space C2 Sustainment Description: The program maintains existing capability for the CSPOC (Combined Space Operations Center) Mission System (JMS). These tasks include maintaining the COTS software database, removing and canceling decommissioned systems and unused tools, adding new tools required for ongoing support of the system, and maintaining data transport services. FY 2020 Plans: N/A FY 2021 Plans: SMC will fund government software centers, laboratories, and contractors for supporting the update, maintenance and modification, integration, configuration management and cybersecurity requirements of legacy software and associated hardware. Activities may include, but are not limited to, software license acquisition, program office support, studies, technical analysis, etc. FY 2020 to FY 2021 Increase/Decrease Statement: N/A	0.000	0.000	31.088
Accomplishments/Planned Programs Subtotals	0.000	0.000	149.742

D. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>FY 2021</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>Cost To</u>	<u>Total Cost</u>
			<u>Base</u>	<u>OCO</u>	<u>Total</u>					<u>Complete</u>	
• SPAF 01 SPCMOD: <i>Space Mods</i>	20.366	11.368	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	31.734

Remarks

E. Acquisition Strategy
 The Space Force is employing agile software development practices such as flexible requirements, frequent user interaction, and rapid delivery and deficiency retirement. This strategy focuses on rapidly delivering capability to warfighters, leveraging commercial, industry and government partners. Currently there are multiple competitive contractors and no prime contractor, a prime contractor is to be determined.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Air Force **Date:** February 2020

Appropriation/Budget Activity 3620F / 8	R-1 Program Element (Number/Name) PE 1203614SF / <i>Space C2</i>	Project (Number/Name) 68A035 / <i>SSA/BMC2</i>
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Product Development (\$ in Millions)				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			
ESBMC2 Enterprise Systems Engineering & Integration	Various	Various : Various	-	-		-		10.300	Nov 2020	-		10.300	Continuing	Continuing	-
ESBMC2 Technical Mission Analysis (WS)	MIPR	Various : Various	-	-		-		1.309	Dec 2020	-		1.309	Continuing	Continuing	-
ESBMC2 Applications	Various	Not Specified : TBD	-	-		-		81.068	Dec 2020	-		81.068	Continuing	Continuing	-
ESBMC2 Platform	Various	Not Specified : TBD	-	-		-		17.232	Dec 2020	-		17.232	Continuing	Continuing	-
ESBMC2 Infrastructure	Various	Not Specified : TBD	-	-		-		10.482	Dec 2020	-		10.482	Continuing	Continuing	-
Subtotal			-	-		-		120.391		-		120.391	Continuing	Continuing	N/A

Support (\$ in Millions)				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			
Civilian Reimbursable Budget Authority	RO	SMC : El Segunda, CA	-	-		-		0.372	Jan 2021	-		0.372	Continuing	Continuing	-
Subtotal			-	-		-		0.372		-		0.372	Continuing	Continuing	N/A

Test and Evaluation (\$ in Millions)				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			
Test	Various	Various : Various	-	-		-		4.000	Dec 2020	-		4.000	Continuing	Continuing	-
Subtotal			-	-		-		4.000		-		4.000	Continuing	Continuing	N/A

Management Services (\$ in Millions)				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			
A&AS	C/FFP	Various : Various	-	-		-		17.764	Nov 2020	-		17.764	Continuing	Continuing	-
FFRDC	Various	Various : Various	-	-		-		6.215	Dec 2020	-		6.215	Continuing	Continuing	-

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Exhibit R-4, RDT&E Schedule Profile: PB 2021 Air Force **Date:** February 2020

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	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

ESBMC2	
Platform/Infrastructure	
Program Increment 8-11	
Program Increment 12-16	
Program Increment 17-20	
Program Increment 21-24	
Program Increment 25-27	
Data Management	
Space C2 Sustainment	
Maintain Existing Capability	

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Exhibit R-4A, RDT&E Schedule Details: PB 2021 Air Force **Date:** February 2020

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Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>ESBMC2</i>				
Platform/Infrastructure	1	2021	4	2025
Program Increment 8-11	1	2021	4	2021
Program Increment 12-16	4	2021	1	2023
Program Increment 17-20	1	2023	1	2024
Program Increment 21-24	1	2024	1	2025
Program Increment 25-27	1	2025	4	2025
Data Management	1	2021	4	2025
<i>Space C2 Sustainment</i>				
Maintain Existing Capability	1	2021	4	2025