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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 I BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 1206425SF / <i>Space Situation Awareness Systems</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	0.000	173.074	0.000	173.074	310.602	75.509	57.280	329.317	244.006	1,189.788
65A006: <i>Space Based Space Surveillance</i>	0.000	0.000	0.000	173.074	0.000	173.074	310.602	75.509	57.280	329.317	244.006	1,189.788
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-	-	-

Program MDAP/MAIS Code: 328

A. Mission Description and Budget Item Justification

In FY 2021, PE 1206425F, Space Situation Awareness Systems, Project 65A006, Space Based Space Surveillance efforts were transferred to Appropriation 3620, Research, Development, Test & Evaluation, Space Force, PE 1206425SF, Space Situation Awareness Systems, Project 65A006, Space Based Space Surveillance from Appropriation 3600, Budget Activity 05 due to the creation of a new Appropriation for Space Force.

The Space-Based Space Surveillance (SBSS) Block 10 satellite was launched September 2010 with a design life through 2018 and an extended operational capability through 2020. The SBSS Follow-On (SBSS FO) program will develop and deliver a system to continue providing space object surveillance from space post SBSS Block 10 End-of-Life. AFSPC and NRO have signed a Memorandum of Agreement partnering SBSS FO with an NRO program based on overlapping requirements. The new partner program is called SILENTBARKER. SILENTBARKER requirements are based on a Statement of Capabilities and upon the current Space Situational Awareness (SSA) Initial Capabilities Document architectural requirements focused on protecting High Value Assets. SILENTBARKER will provide the capability to search, detect, and track objects from a space-based sensor for timely custody and event detection. Surveillance from space augments and overcomes existing ground sensor limitations with timely 24-hour above-the-weather collection of satellite metric data only possible with a space-based sensor and then communicates its findings to the Combined Space Operations Center (CSpOC), National Space Defense Center (NSDC), and other classified users. This program element includes efforts related to SILENTBARKER, its integration into the broader space superiority architecture, and analysis and experimentation to ensure space-based space surveillance capabilities against the evolving threat.

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 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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This program is in Budget Activity 5, System Development and Demonstration (SDD) because it has passed Milestone B approval and is conducting engineering and manufacturing development tasks aimed at meeting validated requirements prior to full rate production.

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	0.000
Current President's Budget	0.000	0.000	173.074	0.000	173.074
Total Adjustments	0.000	0.000	173.074	0.000	173.074
• 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	173.074	0.000	173.074

Change Summary Explanation

FY 2021: +\$173.074M; funds starting in FY 2021 were transferred from RDT&E, Air Force to RDT&E, Space Force.

C. Accomplishments/Planned Programs (\$ in Millions)	FY 2019	FY 2020	FY 2021
Title: SBSS Follow-On (SBSS FO) Design & Development	0.000	0.000	173.074
Description: Performs space based SSA analysis, research, and development for the SILENTBARKER system in partnership with SILENTBARKER.			
FY 2020 Plans: N/A			
FY 2021 Plans: Continue to support SILENTBARKER partner integration and test phase. Prepare for and conduct Test Readiness Review (TRR) prior to deployment. Enhances space environmental monitoring solutions. Continue SILENTBARKER constellation assets to expand coverage for deep space Space Situational Awareness (SSA). Continue implementation of ground mission data processing and data dissemination efforts in support of SILENTBARKER ground requirements. Conduct CDR for expansion effort. Identify requirements and technology enhancements to ensure space-based space surveillance capabilities against the evolving threat for future upgrades, extensions and augmentations.			
FY 2020 to FY 2021 Increase/Decrease Statement:			

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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2019	FY 2020	FY 2021
N/A			
Accomplishments/Planned Programs Subtotals	0.000	0.000	173.074

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

N/A

Remarks

E. Acquisition Strategy

The Acquisition Strategy was approved to minimize the space-based SSA gap post-SBSS Block 10. SILENTBARKER anticipates Initial Launch Capability in FY 2022. The SBSS FO Materiel Development Decision was approved by the Milestone Decision Authority (MDA) on April 5, 2016. The Acquisition Strategy Panel was completed with the MDA on August 29, 2016. To satisfy the SSA architecture needs, the SBSS FO program requirements combined with an NRO program and were updated in the December 2017 SILENTBARKER Statement of Capabilities. The SBSS FO program remains a Space Force program, but will leverage NRO processes to fulfill SBSS FO space segment and telemetry, tracking, and commanding (TT&C) program segments in order to further National Security Space objectives. Mutual investment for the non-recurring engineering (NRE) cost enables the potential for a larger initial constellation buy and lower unit costs. The Space Force and NRO are implementing the approach to meet mission processing requirements, develop the ground architecture, and extend capabilities in 2020 and beyond.

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Exhibit R-4A, RDT&E Schedule Details: PB 2021 Air Force		Date: February 2020
Appropriation/Budget Activity 3620F / 5	R-1 Program Element (Number/Name) PE 1206425SF / <i>Space Situation Awareness Systems</i>	Project (Number/Name) 65A006 / <i>Space Based Space Surveillance</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>SBSS Follow On</i>				
Technology Development, Engineering and Manufacturing Development, Production	1	2021	3	2022
Test Readiness Review (TRR)	4	2021	4	2021
Available for Launch	4	2022	4	2022
On-orbit Support	4	2022	4	2025
<i>SBSS Follow On Expanded Coverage</i>				
Technology Development, Engineering and Manufacturing Development, Production	1	2021	4	2024
Critical Design Review	4	2021	4	2021
Available for Launch	4	2024	4	2024
On-orbit Support	4	2024	4	2025

Note

Event dates are aligned with SILENTBARKER program threshold schedule.