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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 / BA 5: System Development &amp; Demonstration (SDD)</i>	<b>R-1 Program Element (Number/Name)</b> PE 1206425F / <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	139.172	362.894	0.000	0.000	0.000	0.000	0.000	0.000	0.000	244.006	746.072
65A006: <i>Space Based Space Surveillance</i>	0.000	139.172	362.894	0.000	0.000	0.000	0.000	0.000	0.000	0.000	244.006	746.072
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-	-	-

**Program MDAP/MAIS Code:** 328

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

In FY2021, PE 1206425F, Space Situation Awareness Systems efforts were transferred to Appropriation 3620, Research, Development, Test & Evaluation, Space Force, PE 1206425SF Space Situation Awareness Systems 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 1206392F and 1206398F.

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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>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	134.464	412.894	173.131	0.000	173.131
Current President's Budget	139.172	362.894	0.000	0.000	0.000
Total Adjustments	4.708	-50.000	-173.131	0.000	-173.131
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	-50.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	8.892	0.000			
• SBIR/STTR Transfer	-4.184	0.000			
• Other Adjustments	0.000	0.000	-173.131	0.000	-173.131

**Change Summary Explanation**

FY 2019: funding request increased by \$8.892M reprogramming to meet contractor's higher than expected burn rate.

FY 2020: funding request was reduced by \$50.000M to account for the availability of prior year execution balances.

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

<b>C. Accomplishments/Planned Programs (\$ in Millions)</b>	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021</b>
<b>Title:</b> SBSS Follow-On (SBSS FO) Design & Development	139.172	362.894	0.000
<b>Description:</b> Performs space based SSA analysis, research, and development for the SILENTBARKER system in partnership with SILENTBARKER.			
<b>FY 2020 Plans:</b> Complete SILENTBARKER partner development in Engineering and Manufacturing Development (EMD) phase and transition to production phase. Prepare for and conduct Critical Design Review (CDR). Initiate acquisition of capabilities to expand SILENTBARKER coverage in deep space belt. Implement ground mission data processing and scheduling acquisition approach. Identify requirements and technology enhancements to ensure space-based space surveillance capabilities against the evolving threat for future upgrades, extensions, and augmentations through analysis, prototyping, and experimentation. Rapidly respond to and implement system resiliency and situational awareness necessary to operate in the contested space domain. Activities			

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<b>C. Accomplishments/Planned Programs (\$ in Millions)</b>	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021</b>
may include, but are not limited to, program office support, studies, integration, technical analysis, experimentation, prototyping, demonstrations, etc. and leverages opportunities for commercial and international partnerships.			
<b>FY 2021 Plans:</b> N/A			
<b>FY 2020 to FY 2021 Increase/Decrease Statement:</b> N/A			
<b>Accomplishments/Planned Programs Subtotals</b>	139.172	362.894	0.000

**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 an Air 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 Air 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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<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 / 5	<b>R-1 Program Element (Number/Name)</b> PE 1206425F / <i>Space Situation Awareness Systems</i>	<b>Project (Number/Name)</b> 65A006 / <i>Space Based Space Surveillance</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b><i>SBSS Follow On</i></b>				
Technology Development, Engineering and Manufacturing Development, Production	1	2019	4	2020
Preliminary Design Review (PDR)	4	2019	4	2019
<b><i>SBSS Follow On Expanded Coverage</i></b>				
Acquisition Strategy, RFP Development, Technology Evaluation	4	2019	2	2020
Contract Award	2	2020	2	2020
Technology Development, Engineering and Manufacturing Development, Production	3	2020	4	2020

**Note**

Event dates are aligned with SILENTBARKER program threshold schedule.