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Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Air Force **Date:** February 2018

Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 3: Advanced Technology Development (ATD)					R-1 Program Element (Number/Name) PE 0603444F I Maui Space Surveillance System (MSSS)							
COST (\$ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
Total Program Element	-	11.493	10.433	10.674	0.000	10.674	11.878	12.094	12.319	11.553	Continuing	Continuing
634868: Maui Space Surveillance System	-	11.493	10.433	10.674	0.000	10.674	11.878	12.094	12.319	11.553	Continuing	Continuing

A. Mission Description and Budget Item Justification

This program funds ground-based optical space situational awareness technology development and demonstration at the Maui Space Surveillance System in Hawaii, as well as the operation and upgrade of the facility. Efforts in this program have been coordinated through the Department of Defense Science and Technology Executive Committee process to harmonize efforts and eliminate duplication.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver science & technology capabilities. The use of program funds in this PE would be in addition to the civilian pay expenses budgeted in program elements 0601102F, 0602102F, 0602201F, 0602202F, 0602203F, 0602204F, 0602601F, 0602602F, 0602605F, 0602788F, 1206601F, and 0602298F.

This program is in Budget Activity 3, Advanced Technology Development because this budget activity includes development of subsystems and components and efforts to integrate subsystems and components into system prototypes for field experiments and/or tests in a simulated environment.

B. Program Change Summary (\$ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Previous President's Budget	11.681	10.433	11.912	0.000	11.912
Current President's Budget	11.493	10.433	10.674	0.000	10.674
Total Adjustments	-0.188	0.000	-1.238	0.000	-1.238
• 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	-0.188	0.000			
• Other Adjustments	0.000	0.000	-1.238	0.000	-1.238

Change Summary Explanation

Decrease in FY 2019 due to realignment of funds to focus on Directed Energy Game Changer efforts.

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C. Accomplishments/Planned Programs (\$ in Millions)		FY 2017	FY 2018	FY 2019
Title: Operate and Upgrade Maui Space Surveillance System Description: Operate and upgrade the Maui Space Surveillance System to support development, demonstration, and integration of ground-based optical space situational awareness technologies. FY 2018 Plans: Maintain Maui Space Surveillance System facility and experimental equipment in a mission-ready state. Perform needed upgrades and modernization to keep facilities and equipment in good working order and allow Maui Space Surveillance System to perform efficiently and reliably. Operate Maui Space Surveillance System facility for development and demonstration of ground based optical Space Situational Awareness capabilities in conjunction with customer programs and an operational space situational awareness mission. Apply laser-guidestar system at Maui Space Surveillance System to geosynchronous satellite imaging demonstration. FY 2019 Plans: Continue to maintain Maui Space Surveillance System facility and experimental equipment in a mission-ready state. Perform needed upgrades and modernization to keep facilities and equipment in good working order and allow Maui Space Surveillance System to perform efficiently and reliably. Operate Maui Space Surveillance System facility for development and demonstration of ground based optical space situational awareness capabilities in conjunction with customer programs and an operational space situational awareness mission. Accept control of geosynchronous satellite imaging capability, collecting images as requested by stakeholders. Accept control of dynamic telescope system operations into Maui Space Surveillance System capability baseline. FY 2018 to FY 2019 Increase/Decrease Statement: FY 2019 increased compared to FY 2018 by \$1.220 million. Justification for this increase is due to increased space situational awareness technology development.		9.083	9.454	10.674
Title: Geosynchronous Object Sensor Description: Develop and demonstrate dual-use integrated sensor technology for imaging of geosynchronous objects as well as other long-range applications. FY 2018 Plans: Conduct full-power demonstration of laser imaging of objects in geosynchronous orbit. Investigate options to scale technology to smaller apertures and enable range profiling of geosynchronous satellites for rapid orbit determination. FY 2019 Plans: Effort completed FY 2018 to FY 2019 Increase/Decrease Statement:		2.410	0.979	0.000

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C. Accomplishments/Planned Programs (\$ in Millions)		FY 2017	FY 2018	FY 2019
FY 2019 decreased compared to FY 2018 by \$0.979 million. Justification for this decrease is described in the plans above.				
Accomplishments/Planned Programs Subtotals		11.493	10.433	10.674
D. Other Program Funding Summary (\$ in Millions) N/A				
Remarks				
E. Acquisition Strategy N/A				
F. Performance Metrics Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.				