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* / BA 5: *System Development & Demonstration (SDD)*					R-1 Program Element (Number/Name) PE 1203940F / *Space Situation Awareness Operations*							
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	-	0.000	10.029	46.668	0.000	46.668	161.829	39.704	4.977	5.067	Continuing	Continuing
65A037: *Ground Based Optical Sensor System (GBOSS)*	-	0.000	10.029	46.668	0.000	46.668	161.829	39.704	4.977	5.067	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Space Situational Awareness (SSA) is knowledge of all aspects of space related to operations. As the foundation for space control, SSA encompasses surveillance of all space objects and activities; detailed surveillance of specific space assets; monitoring space environmental conditions; monitoring cooperative space assets; gathering indications and warning on adversary space operations; and conducting integrated command, control, communications, processing, analysis, dissemination, and archiving activities. This program element fields, upgrades, operationalizes, operates and maintains Air Force sensors and information integration capabilities within the SSA network while companion program element 1206425F, Space Situational Awareness Systems, develops new network sensors and improved information integration capabilities across the network. Funds also support efforts such as engineering studies and analysis, architectural engineering studies, trade studies, technology needs forecasting, modernization initiatives, systems engineering, system development, and test & evaluation, and may include prototyping and technology demonstration. Activities funded in this program element (1203940F) focus on surveillance of objects in earth orbit to aid tasks including satellite tracking; space object identification; tracking and cataloging; satellite attack warning; notification of satellite flyovers to U.S. forces; space treaty monitoring; and technical intelligence gathering.

The current and future space domain demands that space systems be responsive to new and changing threats, and can rapidly integrate new capabilities to make our warfighting force more resilient in a contested battlespace. This agility, survivability, and rapid reconstitution must extend through the entire space warfighting enterprise, to include how we learn about the threat; develop solutions; acquire, test, deploy, train, operate and integrate new systems into the greater system of systems; and ensure our space mission force is ready to defeat a thinking adversary in a complex, multi-domain battlespace. The enterprise will use all of its elements to accelerate decision-making, prototype potential solutions, rapidly integrate decision-making tools and sustain a war-winning capability by delivering multi-domain effects in, from, and through space and cyberspace enabling battle management and resilience options to "fight through."

This program element may include necessary civilian pay expenses required to manage, execute, and deliver Ground Based Optical Sensor System (GBOSS) capability. The use of such program funds would be in addition to the civilian pay expenses budgeted in program elements 1206392F and 1206398F.

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.

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B. Program Change Summary ($ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Previous President's Budget	0.000	10.029	50.020	0.000	50.020
Current President's Budget	0.000	10.029	46.668	0.000	46.668
Total Adjustments	0.000	0.000	-3.352	0.000	-3.352
• 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	-3.352	0.000	-3.352

Change Summary Explanation

FY2019: $3.352M decrease due to schedule delay.

C. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: Ground Based Optical Sensor System (GBOSS)	-	10.029	46.668

Description: This capability provides global GBOSS performance for sensitivity, search rate, track of non-cooperative launches, precise tagging of clustered objects, and detection of closely spaced dim objects. This effort includes locating GBOSS capabilities in optimal global locations, upgrading existing Ground-based Electro-Optical Deep Space Surveillance (GEODSS) sensors to improve sensitivity and search rates, and may acquire new advanced technology sensor(s) to improve global electro-optical sensor resilience and persistence. The effort will coordinate with the Joint Space Operations Center (JSpOC) Mission System (JMS) program to ensure integration with enterprise data fusion and dissemination to support space battle management and command, control and communications (BMC3).

FY 2018 Plans:

Determine optical global GBOSS locations. Initiate Technology Maturation and Risk Reduction (TMRR) design activity. Continue program office support and other activities that may include, but are not limited to studies, technical analysis, etc.

FY 2019 Plans:

Complete GBOSS Technology Maturation and Risk Reduction (TMRR) activities and initiate Engineering Manufacturing Development (EMD). Rapidly respond to implement system resiliency and situational awareness necessary to operate in

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C. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
the contested space domain. Activities may include, but are not limited to program office support, studies, technical analysis, prototyping, etc. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** FY 2019 increased compared to FY 2018 by $36.639M. Justification for this increase is described in plans above.			
Accomplishments/Planned Programs Subtotals	-	10.029	46.668

D. Other Program Funding Summary ($ in Millions)

N/A

Remarks

E. Acquisition Strategy

GBOSS acquisition strategy is being finalized.

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.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Air Force			Date: February 2018
Appropriation/Budget Activity 3600 / 5	R-1 Program Element (Number/Name) PE 1203940F / *Space Situation Awareness Operations*	Project (Number/Name) 65A037 / *Ground Based Optical Sensor System (GBOSS)*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
GBOSS design, development and life extension	Various	Multiple : Colorado Springs, CO	-	-		5.501	Apr 2018	41.296	Nov 2018	-		41.296	Continuing	Continuing	-
GBOSS Technical Mission Analysis	SS/CPIF	NASA/JPL : Pasadena, CA	-	-		3.000	Jun 2018	2.000	Dec 2018	-		2.000	Continuing	Continuing	-
		Subtotal	-	-		8.501		43.296		-		43.296	Continuing	Continuing	N/A

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
A&AS	Various	Multiple: TBD : TBD	-	-		1.177	May 2018	1.570	May 2019	-		1.570	Continuing	Continuing	-
FFRDC	Various	Multiple: TBD : TBD	-	-		0.351	May 2018	1.752	May 2019	-		1.752	Continuing	Continuing	-
Other Support	C/CPAF	Various: TBD : TBD	-	-		0.000		0.050	Oct 2018	-		0.050	Continuing	Continuing	-
		Subtotal	-	-		1.528		3.372		-		3.372	Continuing	Continuing	N/A

	Prior Years	FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	-		10.029		46.668		-		46.668	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Air Force		Date: February 2018
Appropriation/Budget Activity 3600 / 5	**R-1 Program Element (Number/Name)** PE 1203940F / *Space Situation Awareness Operations*	**Project (Number/Name)** 65A037 / *Ground Based Optical Sensor System (GBOSS)*

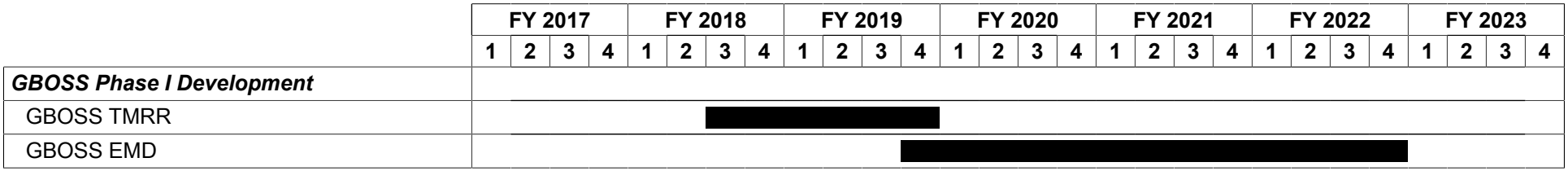

Exhibit R-4A, RDT&E Schedule Details: PB 2019 Air Force		Date: February 2018
Appropriation/Budget Activity 3600 / 5	**R-1 Program Element (Number/Name)** PE 1203940F / *Space Situation Awareness Operations*	**Project (Number/Name)** 65A037 / *Ground Based Optical Sensor System (GBOSS)*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
GBOSS Phase I Development				
GBOSS TMRR	3	2018	4	2019
GBOSS EMD	4	2019	4	2022