Exhibit R-2, RDT&E Budget Item Justification: FY 2018 Air Force	Date: May 2017
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0305208F / *Distributed Common Ground/Surface Systems*

COST ($ in Millions)	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
Total Program Element	-	22.686	30.448	27.501	0.000	27.501	23.170	23.601	24.011	24.503	Continuing	Continuing
674826: *Common Imagery Ground / Surface Systems*	-	22.686	30.448	27.501	0.000	27.501	23.170	23.601	24.011	24.503	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Air Force Distributed Common Ground System (AF DCGS) is the Combat Air Force (CAF) weapon system architecture for planning and direction, collection, processing and exploitation, analysis and production, and dissemination (PCPAD) of data from Intelligence, Surveillance, and Reconnaissance (ISR) missions. Since AF DCGS is also a major component of the DoD DCGS, the system is designed to complement and interoperate with the DoD, Army, Navy and Marine Corps DCGS. The AF DCGS mission is to provide Joint Task Force (JTF) Commanders, Air Component Commanders, Unified Commands, and other directed organizations with global, time-sensitive ISR PCPAD across the spectrum of military operations. AF DCGS is a multi-INT network linked weapon system (AN/GSQ-272) capable of exploiting intelligence data from manned platforms, remotely piloted aircraft (RPA), non-traditional ISR platforms, national and commercial satellites, and other collection systems. AF DCGS is designed to support joint operational requirements by providing a common PCPAD means to provide time-sensitive intelligence to field commanders and in support of the Air Operations Center (AOC) mission requirements. Currently, the AF DCGS worldwide architecture is composed of two worldwide core sites, three regional core sites, two remote Air Force Forces (AF FOR) sites, four National Mission Partner (NMP) sites, three support sites, and multiple National Guard Bureau (NGB) sites. Currently, AF DCGS is supporting ongoing operations from forward deployed and in-garrison CONUS and OCONUS based locations. The system employs a concept of data distribution, information sharing and collaborative work centers. AF DCGS provides the national leadership and the warfighter with integrated and interoperable national and airborne reconnaissance by providing quality and fused Signals Intelligence (SIGINT), Measurement and Signature Intelligence (MASINT), and Geospatial Intelligence (GEOINT) tailored to the warfighter for all levels of conflict.

AF DCGS is transforming by integrating the necessary technologies and tools to provide increased capabilities and meet emerging and urgent operational needs. These efforts will also integrate commercial-off-the-shelf and government-off-the-shelf upgrades to provide current technologies and achieve necessary application services. The next series of upgrades will meet the operational need to integrate new and/or improved sensor capabilities, as well as enhance interoperability by migrating to an Open Architecture (OA) to improve data sharing ability per DoD direction.

Program management consists of eight ACAT III efforts: GEOINT (GB 4.1), GEOINT Transformation, Systems Release (SR 3.0), SIGINT Transformation, Sensor Integration, Multi-INT, Network Infrastructure Transformation, and DCGS Reference Imagery Transition (DRT):

1. *GB 4.1: The GEOINT Baseline 4.1 (GB4.1) effort completes the Bulk Release process and provides a common baseline across the weapon system. It also integrates Airborne Cuing and Exploitation System, Hyper Spectral ACES-HY (MQ-1) and Global Hawk (GH) Block 40 capability into AF DCGS.
2. GEOINT Transformation: The GEOINT Transformation effort rapidly integrates new capabilities and migrates GEOINT-specific applications & capabilities into the open architecture framework.

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3. *SR 3.0: The Systems Release (3.0) effort completes SIGINT Bulk Release process and provides a common baseline across the weapon system. Provides the ability to PCPAD the Airborne Signals Intelligence Payload (ASIP) family of systems and integrates the Common Intelligence Collections System (CICS) capability.
4. SIGINT Transformation: Rapidly integrate new capabilities, leverage mission partner methods and tools, exchange data, and migrate the SIGINT-specific applications/ capabilities into the open architecture framework.
5. *Sensor Integration: The Sensor Integration effort rapidly integrates AF, Joint, & Coalition Sensor data into DCGS Enterprise to ingest data, perform sensor planning, and Command & Control.
6. Multi-INT: Provides and supports Open Architecture (OA)-based Enterprise Services, moves to commodity hardware, a virtual desktop environment, and facilitates enterprise-wide collaborative tools.
7. Network Infrastructure Transformation: The Infrastructure Transformation effort modernizes the AF DCGS infrastructure to improve data ingest, transfer, and storage capabilities while migrating the network toward a cloud architecture.
8.*DRT: The Air Force DCGS Reference Imagery Transition (DRT) effort provides data ingest, transfer, and storage capabilities for NGA reference imagery data.

NOTES:
*For FY18, this effort does not have any associated RDT&E funding. The Other Procurement Air Force (OPAF) funding is exhibited in the Procurement Documentation (WSC846080, DCGS-AF).

This program is in Budget Activity 7, Operational System Development because this budget activity includes development efforts to upgrade systems that have been fielded.

B. Program Change Summary ($ in Millions)	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Previous President's Budget	22.686	18.902	26.422	0.000	26.422
Current President's Budget	22.686	30.448	27.501	0.000	27.501
Total Adjustments	0.000	11.546	1.079	0.000	1.079
• 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	11.546	1.079	0.000	1.079

Change Summary Explanation

In FY 2018, $1.00M was added by the Air Force to enhance target recognition capabilities.

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In FY 2017,$11.546M was requested in the FY 2017 Request for Additional Appropriations to address emergency war-fighting readiness requirements. This provides RDT&E funds to establish peer-to-peer cryptologic interoperability with NSA architecture, automated ingest of airborne data, improved geo-location timeliness & accuracy for tracking & targeting, greatly enhancing the quality of DCGS analysis.

C. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Title: SIGINT Transformation	10.759	14.897	8.267	0.000	8.267
Description: The Signal Intelligence (SIGINT) Transformation effort rapidly integrates new capabilities, leverages mission partner methods and tools, exchange data, and migrates the SIGINT-specific applications/ capabilities into the open architecture framework. The SIGINT Segment provides command and control (C2) of ISR sensors, data processing, and data distribution to the customers in near real time from connected sensors at both core and remote sites. ***FY 2016 Accomplishments:*** Developed connectivity directly to NSANET leveraging national SIGINT and the current AF DCGS System Release 3.0 (SR 3.0) baseline architecture to improve the tactical SIGINT available to the warfighter. Also,integrated current SIGINT specific software applications to the Virtual Desktop Environment, providing expandability for multi-INT in the future. ***FY 2017 Plans:*** Continue to develop and integrate connectivity directly to NSANET leveraging national SIGINT and the SR 3.0 architecture to improve the tactical SIGINT available to the warfighter. Continue to establish peer-to-peer cryptologic interoperability with NSA architecture, automated ingest of airborne data, improved geolocation timeliness & accuracy for tracking & targeting, greatly enhancing the quality of DCGS analysis. ***FY 2018 Base Plans:*** Will continue to develop and integrate connectivity directly to NSANET, leveraging SIGINT and the SR 3.0 architecture to improve the tactical SIGINT available to the warfighter. ***FY 2018 OCO Plans:*** N/A					
Title: Multi-INT Transformation	1.089	0.851	0.700	0.000	0.700
Description: Provides and supports Open Architecture-based Enterprise Services, moves to commodity hardware, a virtual desktop environment, and facilitates enterprise-wide collaborative tools. ***FY 2016 Accomplishments:***					

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C. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Provided support for all projects' test and evaluation activities for the Air Force DCGS weapons system. ***FY 2017 Plans:*** Provide support for all projects' test and evaluation activities for the Air Force DCGS weapons system. ***FY 2018 Base Plans:*** Will provide support for all projects' test and evaluation activities for the Air Force DCGS weapons system. ***FY 2018 OCO Plans:*** N/A					
Title: Network Infrastructure Transformation ***Description:*** The Network Infrastructure Transformation effort modernizes the AF DCGS infrastructure to improve data ingest, transfer, and storage capabilities while migrating the network toward a cloud architecture. A primary task is to replace the Asynchronous Transfer Mode (ATM) capability with a non-ATM based Transport Architecture. ***FY 2016 Accomplishments:*** Continued risk reduction, integration, and deployment activities for Open Architecture (OA) DCGS, migrated Global Hawk (GH) imagery data into the DCGS Storage & Dissemination architecture, and integrated improved GH sensor capability. ***FY 2017 Plans:*** Continue modernizing the AF DCGS infrastructure to improve data ingest, transfer, and storage capabilities while migrating the network toward an open architecture. Continue to add capabilities to the baseline of the FOC weapon system already fielded and does not replace it. Continue integration and deployment activities for the AF DCGS Transport Architecture. ***FY 2018 Base Plans:*** Will continue modernizing the AF DCGS infrastructure to improve data ingest, transfer, and storage capabilities while migrating the network toward an open architecture. Will add capabilities to the baseline of the FOC weapon system already fielded and does not replace it. Will continue integration and deployment activities for the AF DCGS Transport Architecture. ***FY 2018 OCO Plans:***	9.674	13.700	17.315	0.000	17.315

Exhibit R-2, RDT&E Budget Item Justification: FY 2018 Air Force	Date: May 2017
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C. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
N/A					
Title: GEOINT Transformation	1.164	1.000	1.219	0.000	1.219
Description: The GEOINT Transformation effort rapidly integrates new capabilities and migrates GEOINT-specific applications & capabilities into the open architecture framework. Furthermore, GEOINT Transformation provides continuous and incremental improvement to the capability for planning and direction, collection, processing and exploitation, analysis and production, and dissemination (PCPAD) of advanced imagery intelligence. GEOINT Transformation builds upon GB4.1 to integrate new sensors, provide enhanced processing techniques, and provide imagery analysts the advanced capability to exploit, analyze, produce, and disseminate imagery. ***FY 2016 Accomplishments:*** Continued to integrate new capabilities and migrate GEOINT-specific applications and capabilities into the open architecture framework. ***FY 2017 Plans:*** Continue to integrate new capabilities and migrate GEOINT-specific applications & capabilities into the open architecture framework. ***FY 2018 Base Plans:*** Will continue to integrate new capabilities and migrate GEOINT-specific applications & capabilities into the open architecture framework. ***FY 2018 OCO Plans:*** n/a					
Accomplishments/Planned Programs Subtotals	22.686	30.448	27.501	0.000	27.501

D. Other Program Funding Summary ($ in Millions)

Line Item	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
• OPAF: BA04: Line Item #: 846080: *DCGS-AF*	177.021	198.455	167.523	9.200	176.723	159.085	151.591	154.322	157.109	Continuing	Continuing

Remarks

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E. Acquisition Strategy

The AF DCGS acquisition strategy is to transition the weapon system to an open hardware and software architecture. Also, the strategy leverages approved lean and agile industry practices to increase delivery cycles and incorporates remote installation capabilities to speed up the installation tempo.

Contracting strategy involves a combination of Basic Ordering Agreements (BOAs), Indefinite Delivery/Indefinite Quantity (IDIQ) contracts awarded to execute program funds and delivery/task orders are negotiated/awarded individually.

The program is managed as eight ACAT III efforts: GEOINT (GB 4.1), GEOINT Transformation, Systems Release (SR 3.0), SIGINT Transformation, Sensor Integration, Multi-INT-1, Network Infrastructure Transformation, and DCGS Reference Imagery Transition (DRT).

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: FY 2018 Air Force			Date: May 2017
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0305208F / *Distributed Common Ground/Surface Systems*	**Project (Number/Name)** 674826 / *Common Imagery Ground / Surface Systems*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2016 Cost	FY 2016 Award Date	FY 2017 Cost	FY 2017 Award Date	FY 2018 Base Cost	FY 2018 Base Award Date	FY 2018 OCO Cost	FY 2018 OCO Award Date	FY 2018 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
SIGINT Transformation	Various	Various : Various	-	10.759	Jan 2016	14.897	Nov 2016	7.322	Nov 2017	0.000		7.322	Continuing	Continuing	-
Network Infrastructure Transformation	Various	Various : Various	-	5.947	Oct 2015	11.700	Feb 2017	14.900	Feb 2018	0.000		14.900	Continuing	Continuing	-
GEOINT Transformation	Various	Various : Various	-	0.000		1.000	Apr 2017	1.079	Apr 2018	0.000		1.079	Continuing	Continuing	-
		Subtotal	-	16.706		27.597		23.301		0.000		23.301	-	-	-

Remarks

Note on "various" entries - Contract Method, Contract Type, Performing Activity, Target Value of Contract are entered as "various" because there are multiple projects within each upgrade and depending on the type of effort to be completed determines the contract vehicle to use. There is no way on this document to delineate the contracts that support each upgrade as they are numerous.

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2016 Cost	FY 2016 Award Date	FY 2017 Cost	FY 2017 Award Date	FY 2018 Base Cost	FY 2018 Base Award Date	FY 2018 OCO Cost	FY 2018 OCO Award Date	FY 2018 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Multi-INT	Various	Various : Various	-	1.089	Oct 2015	0.851	Jan 2017	0.700	Jan 2018	0.000		0.700	Continuing	Continuing	-
		Subtotal	-	1.089		0.851		0.700		0.000		0.700	-	-	-

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2016 Cost	FY 2016 Award Date	FY 2017 Cost	FY 2017 Award Date	FY 2018 Base Cost	FY 2018 Base Award Date	FY 2018 OCO Cost	FY 2018 OCO Award Date	FY 2018 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2016 Cost	FY 2016 Award Date	FY 2017 Cost	FY 2017 Award Date	FY 2018 Base Cost	FY 2018 Base Award Date	FY 2018 OCO Cost	FY 2018 OCO Award Date	FY 2018 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
PMA	Various	Various : Various	-	4.891	Sep 2016	2.000	Feb 2017	3.500	Feb 2018	0.000		3.500	Continuing	Continuing	-
		Subtotal	-	4.891		2.000		3.500		0.000		3.500	-	-	-

Exhibit R-3, RDT&E Project Cost Analysis: FY 2018 Air Force			Date: May 2017
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Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2016 Cost	FY 2016 Award Date	FY 2017 Cost	FY 2017 Award Date	FY 2018 Base Cost	FY 2018 Base Award Date	FY 2018 OCO Cost	FY 2018 OCO Award Date	FY 2018 Total Cost	Cost To Complete	Total Cost	Target Value of Contract

Remarks

Note on "various" entries - Contract Method, Contract Type, Performing Activity, Target Value of Contract are entered as "various" because there are multiple projects within in each upgrade and depending on the type of effort to be completed determines the contract vehicle to use. There is no way on this document to delineate the contracts that support each upgrade as they are numerous.

	Prior Years	FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	22.686		30.448		27.501		0.000		27.501	-	-	-

Remarks

Exhibit R-4, RDT&E Schedule Profile: FY 2018 Air Force		Date: May 2017
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0305208F / *Distributed Common Ground/Surface Systems*	**Project (Number/Name)** 674826 / *Common Imagery Ground / Surface Systems*

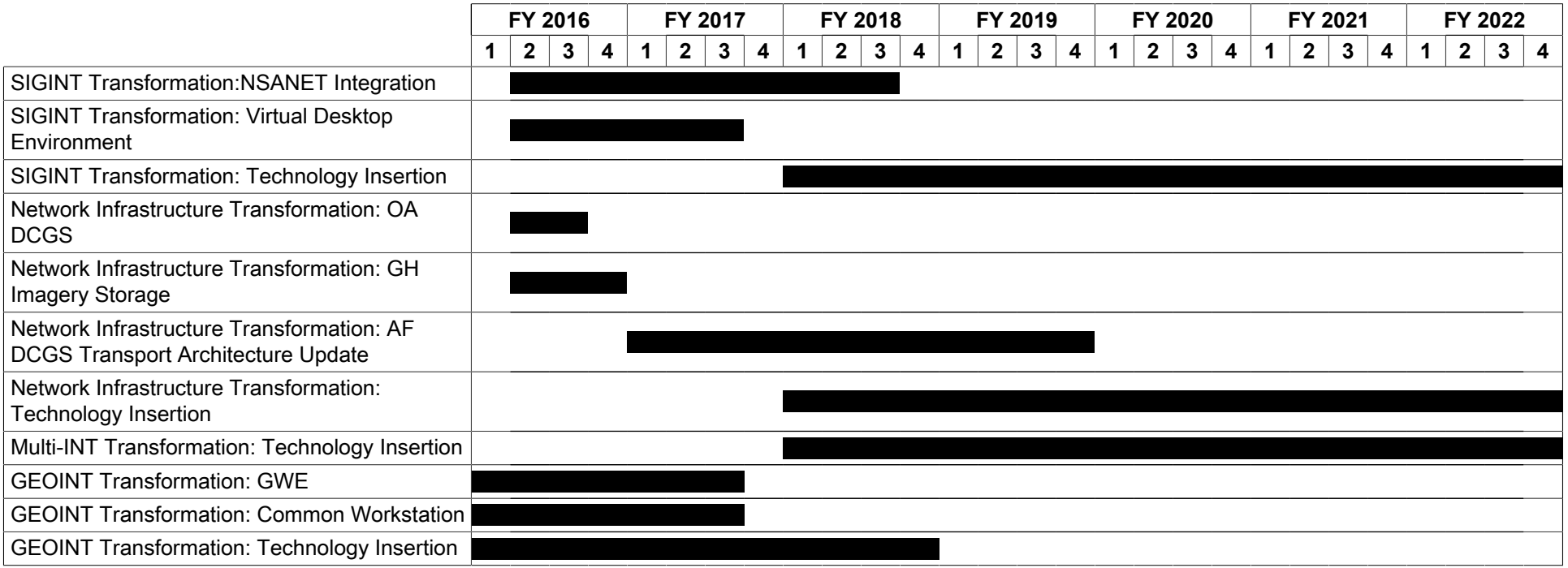

Exhibit R-4A, RDT&E Schedule Details: FY 2018 Air Force		Date: May 2017
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0305208F / *Distributed Common Ground/Surface Systems*	**Project (Number/Name)** 674826 / *Common Imagery Ground / Surface Systems*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
SIGINT Transformation:NSANET Integration	2	2016	3	2018
SIGINT Transformation: Virtual Desktop Environment	2	2016	3	2017
SIGINT Transformation: Technology Insertion	1	2018	4	2022
Network Infrastructure Transformation: OA DCGS	2	2016	3	2016
Network Infrastructure Transformation: GH Imagery Storage	2	2016	4	2016
Network Infrastructure Transformation: AF DCGS Transport Architecture Update	1	2017	4	2019
Network Infrastructure Transformation: Technology Insertion	1	2018	4	2022
Multi-INT Transformation: Technology Insertion	1	2018	4	2022
GEOINT Transformation: GWE	1	2016	3	2017
GEOINT Transformation: Common Workstation	1	2016	3	2017
GEOINT Transformation: Technology Insertion	1	2016	4	2018