Department of Defense
Fiscal Year (FY) 2019 Budget Estimates

February 2018

Air Force

Justification Book Volume 1 of 1

Space Procurement, Air Force

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Volume 1 Table of Contents

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Appropriation Language
Fiscal Year (FY) 2019 Budget Estimates
Space Procurement, Air Force

For construction, procurement, and modification of spacecraft, launch services, and related equipment (including ground control and communication equipment) and training devices; expansion of public and private plants, Government-owned equipment and installation thereof in such plants, erection of structures, and acquisition of land, for the foregoing purposes, and such lands and interests therein, may be acquired, and construction prosecuted thereon prior to approval of title; reserve plant and Government and contractor-owned equipment layaway; and other expenses necessary for the foregoing purposes including rents and transportation of things; $2,527,542,000 to remain available for obligations until September 30, 2023.

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Department of the Air Force
FY 2019 President's Budget
Exhibit P-1 FY 2019 President's Budget
Total Obligational Authority
(Dollars in Thousands)

01 Feb 2018

Appropriation: Space Procurement, Air Force

Budget Activity	FY 2017 (Base + OCO)	FY 2018 PB Request with CR Adj Base	FY 2018 Total PB Requests* with CR Adj Base	FY 2018 PB Request with CR Adj OCO
01. Space Procurement, Air Force	2,729,552	3,352,066	3,352,066	2,256
02. Spares	20,606	18,709	18,709	
20. Undistributed		-758,379	-758,379	17,644
Total Space Procurement, Air Force	2,750,158	2,612,396	2,612,396	19,900

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Department of the Air Force
FY 2019 President's Budget
Exhibit P-1 FY 2019 President's Budget
Total Obligational Authority
(Dollars in Thousands)

01 Feb 2018

Appropriation: Space Procurement, Air Force

Budget Activity	FY 2018 Total PB Requests+ with CR Adj OCO	FY 2018 Emergency Requests** Emergency	FY 2018 Less Enacted Div B P.L.115-96*** MDDE + Ship Repairs	FY 2018 Remaining Req Emergency
01. Space Procurement, Air Force	2,256			
02. Spares				
20. Undistributed	17,644			
Total Space Procurement, Air Force	19,900			

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Department of the Air Force
FY 2019 President's Budget
Exhibit P-1 FY 2019 President's Budget
Total Obligational Authority
(Dollars in Thousands)

01 Feb 2018

Appropriation: Space Procurement, Air Force

Budget Activity	FY 2018 Total PB Requests* with CR Adj Base + OCO + Emergency**	FY 2018 Less Enacted DIV B P.L.115-96*** MDDE + Ship Repairs	FY 2018 Remaining Req with CR Adj Base + OCO + Emergency
01. Space Procurement, Air Force	3,354,322		3,354,322
02. Spares	18,709		18,709
20. Undistributed	-740,735		-740,735
Total Space Procurement, Air Force	2,632,296		2,632,296

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Department of the Air Force
FY 2019 President's Budget
Exhibit P-1 FY 2019 President's Budget
Total Obligational Authority
(Dollars in Thousands)

01 Feb 2018

Appropriation: Space Procurement, Air Force

Budget Activity	FY 2019 Base	FY 2019 OCO	FY 2019 Total
01. Space Procurement, Air Force	2,505,730		2,505,730
02. Spares	21,812		21,812
20. Undistributed			
Total Space Procurement, Air Force	2,527,542		2,527,542

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Department of the Air Force
FY 2019 President's Budget
Exhibit P-1 FY 2019 President's Budget
Total Obligational Authority
(Dollars in Thousands)

01 Feb 2018

Appropriation: 3021F Space Procurement, Air Force

Line No	Item Nomenclature	Ident Code	FY 2017 (Base + OCO) Quantity	FY 2017 (Base + OCO) Cost	FY 2018 PB Request with CR Adj Base Quantity	FY 2018 PB Request with CR Adj Base Cost	FY 2018 Total PB Requests* with CR Adj Base Quantity	FY 2018 Total PB Requests* with CR Adj Base Cost	FY 2018 PB Request with CR Adj OCO Quantity	FY 2018 PB Request with CR Adj OCO Cost	Sec
	Budget Activity 01: Space Procurement, Air Force										
	Space Programs										
1	Advanced EHF	A		645,569		56,974		56,974			U
2	AF Satellite Comm System	A		37,281		57,516		57,516			U
3	Counterspace Systems	A		46,884		28,798		28,798			U
4	Family of Beyond Line-of-Sight Terminals	A		88,963		146,972		146,972			U
5	Wideband Gapfiller Satellites(Space)	A		48,772		80,849		80,849			U
6	General Information Tech - Space	A									U
7	GPS III Space Segment	A		33,974		85,894		85,894			U
8	Global Postioning (Space)	A		2,082		2,198		2,198			U
9	INTEG BROADCAST SERV	A									U
10	Spaceborne Equip (Comsec)	A		31,708		25,048		25,048			U
11	Global Positioning (Space)	A		9,838							U
12	MILSATCOM	A		41,773		33,033		33,033		2,256	U
13	Evolved Expendable Launch Capability	A		716,586		957,420		957,420			U
14	Evolved Expendable Launch Veh(Space)	A	3	536,853	3	606,488	3	606,488			U
15	SBIR High (Space)	A		355,114		981,009		981,009			U

16 SBIR High (Space)			
Advance Procurement (CY)	132,420	132,420	U
C (FY 2018 for FY 2020) (M)	(132,420)	(132,420)	

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Department of the Air Force
FY 2019 President's Budget
Exhibit P-1 FY 2019 President's Budget
Total Obligational Authority
(Dollars in Thousands)

01 Feb 2018

Appropriation: 3021F Space Procurement, Air Force

Line No	Item Nomenclature	Ident Code	FY 2018 Total PB Requests+ with CR Adj OCO Quantity	FY 2018 Total PB Requests+ with CR Adj OCO Cost	FY 2018 Emergency Requests** Emergency Quantity	FY 2018 Emergency Requests** Emergency Cost	FY 2018 Less Enacted Div B P.L.115-96*** MDDE + Ship Repairs Quantity	FY 2018 Less Enacted Div B P.L.115-96*** MDDE + Ship Repairs Cost	FY 2018 Remaining Req Emergency Quantity	FY 2018 Remaining Req Emergency Cost	Sec
	Budget Activity 01: Space Procurement, Air Force										
	Space Programs										
1	Advanced EHF	A									U
2	AF Satellite Comm System	A									U
3	Counterspace Systems	A									U
4	Family of Beyond Line-of-Sight Terminals	A									U
5	Wideband Gapfiller Satellites(Space)	A									U
6	General Information Tech - Space	A									U
7	GPS III Space Segment	A									U
8	Global Postioning (Space)	A									U
9	INTEG BROADCAST SERV	A									U
10	Spaceborne Equip (Comsec)	A									U
11	Global Positioning (Space)	A									U
12	MILSATCOM	A		2,256							U
13	Evolved Expendable Launch Capability	A									U
14	Evolved Expendable Launch Veh(Space)	A									U
15	SBIR High (Space)	A									U

16 SBIR High (Space)
Advance Procurement (CY) U
C (FY 2018 for FY 2020) (M)

P-119PB: FY 2019 President's Budget (Published Version), as of February 1, 2018 at 12:17:25

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Department of the Air Force
FY 2019 President's Budget
Exhibit P-1 FY 2019 President's Budget
Total Obligational Authority
(Dollars in Thousands)

01 Feb 2018

Appropriation: 3021F Space Procurement, Air Force

Line No	Item Nomenclature	Ident Code	FY 2018 Total PB Requests* with CR Adj Base + OCO + Emergency** Quantity	FY 2018 Total PB Requests* with CR Adj Base + OCO + Emergency** Cost	FY 2018 Less Enacted DIV B P.L.115-96*** MDDE + Ship Repairs Quantity	FY 2018 Less Enacted DIV B P.L.115-96*** MDDE + Ship Repairs Cost	FY 2018 Remaining Req with CR Adj Base + OCO + Emergency Quantity	FY 2018 Remaining Req with CR Adj Base + OCO + Emergency Cost	Sec
Budget Activity 01: Space Procurement, Air Force									
	Space Programs								
1	Advanced EHF	A		56,974				56,974	U
2	AF Satellite Comm System	A		57,516				57,516	U
3	Counterspace Systems	A		28,798				28,798	U
4	Family of Beyond Line-of-Sight Terminals	A		146,972				146,972	U
5	Wideband Gapfiller Satellites(Space)	A		80,849				80,849	U
6	General Information Tech - Space	A							U
7	GPS III Space Segment	A		85,894				85,894	U
8	Global Postioning (Space)	A		2,198				2,198	U
9	INTEG BROADCAST SERV	A							U
10	Spaceborne Equip (Comsec)	A		25,048				25,048	U
11	Global Positioning (Space)	A							U
12	MILSATCOM	A		35,289				35,289	U
13	Evolved Expendable Launch Capability	A		957,420				957,420	U
14	Evolved Expendable Launch Veh(Space)	A	3	606,488			3	606,488	U
15	SBIR High (Space)	A		981,009				981,009	U

16 SBIR High (Space)			
Advance Procurement (CY)	132,420	132,420	U
C (FY 2018 for FY 2020) (M)	(132,420)	(132,420)	

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Department of the Air Force
FY 2019 President's Budget
Exhibit P-1 FY 2019 President's Budget
Total Obligational Authority
(Dollars in Thousands)

01 Feb 2018

Appropriation: 3021F Space Procurement, Air Force

Line No	Item Nomenclature	Ident Code	FY 2019 Base Quantity	FY 2019 Base Cost	FY 2019 OCO Quantity	FY 2019 OCO Cost	FY 2019 Total Quantity	FY 2019 Total Cost	Sec
Budget Activity 01: Space Procurement, Air Force									
	Space Programs								
1	Advanced EHF	A		29,829				29,829	U
2	AF Satellite Comm System	A		35,400				35,400	U
3	Counterspace Systems	A		1,121				1,121	U
4	Family of Beyond Line-of-Sight Terminals	A		27,867				27,867	U
5	Wideband Gapfiller Satellites(Space)	A		61,606				61,606	U
6	General Information Tech - Space	A		3,425				3,425	U
7	GPS III Space Segment	A		69,386				69,386	U
8	Global Postioning (Space)	A		2,181				2,181	U
9	INTEG BROADCAST SERV	A		16,445				16,445	U
10	Spaceborne Equip (Comsec)	A		31,895				31,895	U
11	Global Positioning (Space)	A							U
12	MILSATCOM	A		11,265				11,265	U
13	Evolved Expendable Launch Capability	A		709,981				709,981	U
14	Evolved Expendable Launch Veh(Space)	A	5	994,555			5	994,555	U
15	SBIR High (Space)	A		138,397				138,397	U

16 SBIR High (Space)
Advance Procurement (CY) U
C (FY 2018 for FY 2020) (M)

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Department of the Air Force
FY 2019 President's Budget
Exhibit P-1 FY 2019 President's Budget
Total Obligational Authority
(Dollars in Thousands)

01 Feb 2018

Appropriation: 3021F Space Procurement, Air Force

Line No	Item Nomenclature	Ident Code	FY 2017 (Base + OCO) Quantity	FY 2017 (Base + OCO) Cost	FY 2018 PB Request with CR Adj Base Quantity	FY 2018 PB Request with CR Adj Base Cost	FY 2018 Total PB Requests* with CR Adj Base Quantity	FY 2018 Total PB Requests* with CR Adj Base Cost	FY 2018 PB Request with CR Adj OCO Quantity	FY 2018 PB Request with CR Adj OCO Cost	Sec
17	NUDET Detection System	A		4,395		6,370		6,370			U
18	Rocket Systems Launch Program	A									U
19	space fence	A									U
20	Space Mods	A		8,975		37,203		37,203			U
21	Spacelift Range System Space	A		120,785		113,874		113,874			U
Total Space Procurement, Air Force				2,729,552		3,352,066		3,352,066		2,256	
Budget Activity 02: Spares											
	SSpares										
22	Spares and Repair Parts	A		20,606		18,709		18,709			U
Total Spares				20,606		18,709		18,709			
Budget Activity 20: Undistributed											
	Undistributed										
23	Adj to Match Continuing Resolution	A				-758,379		-758,379		17,644	U
Total Undistributed						-758,379		-758,379		17,644	
Total Space Procurement, Air Force				2,750,158		2,612,396		2,612,396		19,900	

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Department of the Air Force
FY 2019 President's Budget
Exhibit P-1 FY 2019 President's Budget
Total Obligational Authority
(Dollars in Thousands)

01 Feb 2018

Appropriation: 3021F Space Procurement, Air Force

Line No	Item Nomenclature	Ident Code	FY 2018 Total PB Requests+ with CR Adj OCO Quantity	FY 2018 Total PB Requests+ with CR Adj OCO Cost	FY 2018 Emergency Requests** Emergency Quantity	FY 2018 Emergency Requests** Emergency Cost	FY 2018 Less Enacted Div B P.L.115-96*** MDDE + Ship Repairs Quantity	FY 2018 Less Enacted Div B P.L.115-96*** MDDE + Ship Repairs Cost	FY 2018 Remaining Req Emergency Quantity	FY 2018 Remaining Req Emergency Cost	Sec
17	NUDET Detection System	A									U
18	Rocket Systems Launch Program	A									U
19	space fence	A									U
20	Space Mods	A									U
21	Spacelift Range System Space	A									U
Total Space Procurement, Air Force				2,256							
Budget Activity 02: Spares											
	SSpares										
22	Spares and Repair Parts	A									U
Total Spares											
Budget Activity 20: Undistributed											
	Undistributed										
23	Adj to Match Continuing Resolution	A		17,644							U
Total Undistributed				17,644							
Total Space Procurement, Air Force				19,900							

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Department of the Air Force
FY 2019 President's Budget
Exhibit P-1 FY 2019 President's Budget
Total Obligational Authority
(Dollars in Thousands)

01 Feb 2018

Appropriation: 3021F Space Procurement, Air Force

Line No	Item Nomenclature	Ident Code	FY 2018 Total PB Requests* with CR Adj Base + OCO + Emergency** Quantity	FY 2018 Total PB Requests* with CR Adj Base + OCO + Emergency** Cost	FY 2018 Less Enacted DIV B P.L.115-96*** MDDE + Ship Repairs Quantity	FY 2018 Less Enacted DIV B P.L.115-96*** MDDE + Ship Repairs Cost	FY 2018 Remaining Req with CR Adj Base + OCO + Emergency Quantity	FY 2018 Remaining Req with CR Adj Base + OCO + Emergency Cost	Sec
17	NUDET Detection System	A		6,370				6,370	U
18	Rocket Systems Launch Program	A							U
19	space fence	A							U
20	Space Mods	A		37,203				37,203	U
21	Spacelift Range System Space	A		113,874				113,874	U
Total Space Procurement, Air Force				3,354,322				3,354,322	
Budget Activity 02: Spares									
SSpares									
22	Spares and Repair Parts	A		18,709				18,709	U
Total Spares				18,709				18,709	
Budget Activity 20: Undistributed									
Undistributed									
23	Adj to Match Continuing Resolution	A		-740,735				-740,735	U
Total Undistributed				-740,735				-740,735	
Total Space Procurement, Air Force				2,632,296				2,632,296	

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Department of the Air Force
FY 2019 President's Budget
Exhibit P-1 FY 2019 President's Budget
Total Obligational Authority
(Dollars in Thousands)

01 Feb 2018

Appropriation: 3021F Space Procurement, Air Force

Line No	Item Nomenclature	Ident Code	FY 2019 Base Quantity	FY 2019 Base Cost	FY 2019 OCO Quantity	FY 2019 OCO Cost	FY 2019 Total Quantity	FY 2019 Total Cost	Sec
17	NUDET Detection System	A		7,705				7,705	U
18	Rocket Systems Launch Program	A		47,609				47,609	U
19	space fence	A		51,361				51,361	U
20	Space Mods	A		148,065				148,065	U
21	Spacelift Range System Space	A		117,637				117,637	U
Total Space Procurement, Air Force				2,505,730				2,505,730	
Budget Activity 02: Spares									
SSpares									
22	Spares and Repair Parts	A		21,812				21,812	U
Total Spares				21,812				21,812	
Budget Activity 20: Undistributed									
Undistributed									
23	Adj to Match Continuing Resolution	A							U
Total Undistributed									
Total Space Procurement, Air Force				2,527,542				2,527,542	

Line Item Table of Contents (by Appropriation then Line Number)

Appropriation 3021F: Space Procurement, Air Force

Appropriation 3021F: Space Procurement, Air Force

Appropriation 3021F: Space Procurement, Air Force

Line Item Table of Contents (Alphabetically by Line Item Title)

Air Force • Budget Estimates FY 2019 • Procurement
Exhibit P-1M, Procurement Programs - Modification Summary
(Listing by Model)

Lookup Matrix by Model

Model:	Air Force Satellite Control Network	
Modification P-40a Aggregated Items Title:	**AF Satellite Comm System**	
Item Number	**Item Title**	**Applies to Multiple Models**
Uncategorized		
01-RBC	Remote Tracking Station Block Change (RBC)	No

Model:	SBIRS	
P-3a Individual Modifications		
Modification Number	**Modification Title**	**Applies to Multiple Models**
1	SBIRS Mobile System & Fixed Comm Electronics Upgrades	No

Model:	GPS-OCS	
P-3a Individual Modifications		
Modification Number	**Modification Title**	**Applies to Multiple Models**
1	NAVSTAR GPS-OCS COTS UPGRADE	No

Model:	SEWS	
Modification P-40a Aggregated Items Title:	**Shared Early Warning (SEW)**	
Item Number	**Item Title**	**Applies to Multiple Models**
Uncategorized		
SEWS	SEWS	No

Model:	No text provided.

P-3a Individual Modifications		
Modification Number	**Modification Title**	**Applies to Multiple Models**
1	Weather Space Vehicle Relay Ground Station	No

Model:	NA
Modification P-40a Aggregated Items Title:	Ballistic Missile Early Warning System (BMEWS)

Item Number	Item Title	Applies to Multiple Models
Uncategorized		
BMEWS	DP/SP	No

Modification P-40a Aggregated Items Title:	Submarine-Launched Ballistic Missile (SLBM) Radar Warning System

Item Number	Item Title	Applies to Multiple Models
Uncategorized		
PARCSB2	PARCS Block 02	No

P-3a Individual Modifications		
Modification Number	**Modification Title**	**Applies to Multiple Models**
1	BPP Block 02	No
1	PARCS Block 01	No

Model:	Spacelift Range System Space
Modification P-40a Aggregated Items Title:	1203182F SPRNGE

Item Number	Item Title	Applies to Multiple Models
Uncategorized		
02-WMN	Western Range Modernization of Network (WMN)	No
03-RCDM	Range Command Destruct Modernization (RCDM)	No

Air Force • Budget Estimates FY 2019 • Procurement
Exhibit P-1M, Procurement Programs - Modification Summary
(Listing by Model)

Model:	Spacelift Range System Space	
P-3a Individual Modifications		
Modification Number	**Modification Title**	**Applies to Multiple Models**
1	Modernization of Eastern Range Network (MEN)	No
2	Range Communications Facility (RCF)	No

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Funding ($ M)

Modification P-40a Item Title P-3a Modification Title	PYS	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023
Exhibit P-40a										
Remote Tracking Station Block Change (RBC)	27.773	17.412	25.175	-	-	-	19.919	0.000	-	-
SEWS	-	-	-	0.348	0.000	0.348	0.355	0.361	0.367	0.374
DP/SP	-	-	-	1.500	-	1.500	1.500	1.500	-	-
PARCS Block 02	-	-	-	0.500	-	0.500	8.165	8.307	8.456	8.615
Western Range Modernization of Network (WMN)	12.779	39.727	7.892	3.472	-	3.472	3.251	1.384	0.014	-
Range Command Destruct Modernization (RCDM)	2.839	4.697	42.127	3.000	-	3.000	2.345	1.338	-	-
Exhibit P-3a										
SBIRS Mobile System & Fixed Comm Electronics Upgrades	7.676	7.541	7.693	8.427	0.000	8.427	8.550	8.026	8.188	8.340
NAVSTAR GPS-OCS COTS UPGRADE	13.136	8.000	13.654	13.481	0.000	13.481	13.876	13.902	2.043	2.082
Weather Space Vehicle Relay Ground Station	0.000	0.000	18.620	63.737	0.000	63.737	0.000	0.000	0.000	-
BPP Block 02	-	-	0.000	16.027	0.000	16.027	21.821	23.810	27.157	26.137
PARCS Block 01	-	-	-	8.617	0.000	8.617	0.000	0.000	0.000	0.000
Modernization of Eastern Range Network (MEN)	1.048	7.346	3.000	8.500	0.000	8.500	0.000	0.000	-	-
Range Communications Facility (RCF)	-	8.707	20.099	29.200	0.000	29.200	45.800	34.600	4.100	4.300
Totals (Total Obligation Authority)										
Total Obligation Authority	**65.251**	**93.430**	**138.260**	**156.809**	**0.000**	**156.809**	**125.582**	**93.228**	**50.325**	**49.848**

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ACRONYMS

GENERAL ACRONYMS

A&AS	- Advisory & Assistance Services
ABIDES	- Automated Budget Interactive Data Environment System
ACAT	- Acquisition Category
ACTD	- Advanced Concept Technology Demonstration
AGM	- Air-to-Ground Missile
AIM	- Air Intercept Missile
AIS	- Avionics Intermediate Shop
ACMI	- Aircraft Combat Maneuvering Instrumentation
AMRAAM	- Advanced Medium-Range Air-to-Air Missile
APPN	- Appropriation
ATD	- Advanced Technology Development
BA	- Budget Activity
BLSS	- Base Level Self-Sufficiency Spares
BY	- Budget Year
C3	- Command, Control, and Communication System
CFE	- Contractor Furnished Equipment
CONOPS	- Concept of Operation
CONUS	- Continental United States
CPMS	- Comprehensive Power Management System
CPT	- Cockpit Procedures Trainer
CRA	- Continuing Resolution Authority
CTS	- Countermeasures Test Set
CY	- Current Year
ECCM	- Electronic Counter Counter-Measures
ECM	- Electronic Counter Measures
ECO	- Engineering Change Orders
EOQ	- Economic Order Quantity
ECP	- Engineering Change Proposal
EPA	- Economic Price Adjustment
EW	- Electronic Warfare
EWAISP	- Electronic Warfare Avionics Integration Support Facility
FLIR	- Forward Looking Infra Red

FOT&E	- Follow-on Test and Evaluation
FOC	- Fully Operational Capability
FLTS	- Flight Line Test Set
FPIF	- Fixed Price Incentive Firm
FPIS	- Fixed Price Incentive Fee, Successive Targets
FY	- Fiscal Year
GANS	- Global Access Navigation & Safety
GATM	- Global Air Traffic Management
GFE	- Government Furnished Equipment
GFP	- Government Furnished Property
GPS	- Global Positioning System
GSE	- Ground Support Equipment
ICS	- Interim Contractor Support
IOC	- Initial Operating Capability
IPE	- Increased Performance Engine
JPALS	- Joint Precision Approach and Landing System
MAIS	- Major Automated Information System Program
MDAP	- Major Defense Acquisition Program
METS	- Mobile Electronic Test Stations
MYP	- Multiyear Procurement
MSIP	- Multi-Stage Improvement Program
NAVWAR	- Navigation Warfare
NMC Rate	- Not Mission Capable Rate
OFP	- Operational Flight Program
OT&E	- Operational Test and Evaluation
OWRM	- Other War Reserve Material
PAGEL	- Priced Aerospace Ground Equipment List
PB	- President's Budget
PGSE	- Peculiar Ground Support Equipment
PMA	- Program Management Administration
PMC	- Procurement Method Code
PNO	- Acquisition Program Number (MDAP Codes)
PR	- Purchase Request
PRCP	- Program Resource Collection Process
PTT	- Part Task Trainer
PY	- Prior Year

R&M	- Reliability and Maintainability
RAA	- Required Asset Availability
RDT&E	- Research, Development, Test and Evaluation
RWR	- Radar Warning Receiver
ROM	- Rough Order of Magnitude
SS	- Sole Source
SOF	- Special Operation Force
TAF	- Tactical Air Force
TCAS	- Traffic Collision Alert and Avoidance System
TEWS	- Tactical Electronic Warfare System
TISS	- TEWS Intermediate Support System
TOA	- Total Obligation Authority
WCF	- Working Capital Fund
WRM	- War Reserve Material
WST	- Weapon System Trainer
UAV	- Unmanned Aerial Vehicle
XML	- Extensible Markup Language

BASE / ORGANIZATIONAL ACRONYMNS

ACC	- Air Combat Command
AETC	- Air Education & Training Command
AFCAO	- Air Force Computer Acquisition Office
AFCESA	- Air Force Civil Engineering Support Agency
AFCIC	- AF Communications & Information Center
AFCSC	- Air Force Cryptologic Service Center
AFESC	- Air Force Engineering Services Center
AFGWC	- Air Force Global Weather Central
AFIT	- Air Force Institute of Technology
AFLCMC	- Air Force Life Cycle Management Center
AFMC	- Air Force Materiel Command
AFMETCAL	- Air Force Metrology and Calibration Office
AFMLO	- Air Force Medical Logistics Office
AFOSI	- Air Force Office of Special Investigation
AFOTEC	- Air Force Operational Test & Evaluation Center
AFPC	- Air Force Personnel Center

AFPSL	- AF Primary Standards Lab
AFR	- Air Force Reserve
AFSOC	- AF Special Operations Command
AFSPC	- Air Force Space Command
AIA	- Air Intelligence Agency
ALC	- Air Logistics Center
AMC	- Air Mobility Command
ANG	- Air National Guard
ASC	- Aeronautical Systems Center
AETC	- Air Education Training Command
AU	- Air University
AWS	- Air Weather Service
CIA	- Central Intelligence Agency
DGSC	- Defense General Support Center
DLA	- Defense Logistics Center
DOE	- Department of Energy
DPSC	- Defense Personnel Support Center
DSCC	- Defense Supply Center, Columbus
DTIC	- Defense Technical Information Center
ER	- Eastern Range
ESC	- Electronic Systems Center
FAA	- Federal Aviation Agency
FBI	- Federal Bureau of Investigation
GSA	- General Services Administration
JCS	- Joint Chiefs of Staff
NATO	- North Atlantic Treaty Organization
OSD	- Office of the Secretary of Defense
PACAF	- Pacific Air Forces
USAF	- United States Air Force
USAFA	- United States Air Force Academy
USAFE	- United States Air Force Europe
USCENTCOM	- United States Central Command
USEUCOM	- United States European Command
USMC	- United States Marine Corps
USSTRATCOM	- United States Strategic Command
WP AFB	- Wright-Patterson AFB, OH

CONTRACT METHOD / TYPE ACRONYMNS

C	- Competitive
BA	- Basic Agreement
BOA	- Basic Ordering Agreement
BPA	- Blanket Purchasing Agreement
CS	- Cost Sharing
IDDQ	- Indefinite Delivery, Definite Quantity
IDIQ	- Indefinite Delivery, Indefinite Quantity
IDRT	- Indefinite Delivery, Requirements
Letter	- Letter
LH	- Labor-hour
MIPR	- Military Interdepartmental Purchase Request
MIPR-C	- Military Interdepartmental Purchase Request - Competitive
MIPR-OPT	- Military Interdepartmental Purchase Request - Option
MIPR-OTH	- Military Interdepartmental Purchase Request – Other
MIPR-SS	- Military Interdepartmental Purchase Request - Sole Source
OPT	- Option
OTH	- Other
PO	- Project Order
REQN	- Requisition
SS	- Sole Source
T&M	- Time and Materials
UCA	- Undefinitized Contract Action
WP	- Work Project

CONTRACTED BY ACRONYMNS

11 WING	- 11th Support Wing, Washington, DC
ACC	- Air Combat Command, Langley AFB, VA
AEDC	- Arnold Engineering Development Center, Arnold AFB, TN
AAC	- Air Armament Center, Eglin AFB, FL
AEDC	- Arnold Engineering Development Center, Arnold AFB, TN
AETC	- Air Education and Training Command, Randolph AFB, TX
AFCIC	- Air Force Communications and Information Center, Washington, DC
AFCESA	- Air Force Civil Engineering Support Agency, Tyndall AFB, FL
AFFTC	- Air Force Flight Test Center, Edwards AFB, CA

AFLCMC	- Air Force Life Cycle Management Center, Wright-Patterson AFB, OH
AFMC	- Air Force Materiel Command, Wright-Patterson AFB, OH
AFMETCAL	- Air Force Metrology and Calibration Office, Heath, Ohio
AFMLO	- Air Force Medical Logistics Office, Ft Detrick, MD
AIA	- Air Intelligence Agency, Kelly AFB, TX
AMC	- Air Mobility Command, Scott AFB, IL
ASC	- Aeronautical Systems Center, Wright-Patterson AFB, OH & Eglin AFB, FL
AFWA	- Air Force Weather Agency, Offutt AFB, NE
DGSC	- Defense General Support Center, Richmond, VA
DPSC	- Defense Personnel Support Center, Philadelphia, PA
ER	- Eastern Range, Patrick AFB, FL
ESC	- Electronic Systems Center, Hanscom AFB, MA
HSC	- Human Services Center, Brook AFB, TX
OC-ALC	- Oklahoma City Air Logistics Center, Tinker AFB, OK
OO-ALC	- Ogden Air Logistics Center, Hill AFB, UT
SMC	- Space & Missile Systems Center, Los Angeles AFB, CA
US STRATCOM	- US Strategic Command, Offutt AFB, NE
WACC	- Washington Area Contracting Center, Washington DC
WR	- Western Range, Vandenberg AFB, CA
WR-ALC	- Warner-Robins Air Logistics Center, Robins AFB, GA
AFSPC	- Air Force Space Command, Peterson AFB, CO
HQ ANG	- Headquarters, Air National Guard, Washington, DC
USAFE	- United States Air Force Europe, Ramstein AB, GE
USAFA	- United States Air Force Academy, Colorado Springs, CO
SSG	- Standard Systems Group, Maxwell AFB-Gunter Annex, AL

IDENTIFICATION CODES

Code “A”	- Line items of material which have been approved for Air Force service use
Code “B”	- Line items of material that have not been approved for Service use
OBAN	- Operating Budget Account Number, 2-digit code for unit allocated funds

Exhibit P-40, Budget Line Item Justification: PB 2019 Air Force	Date: February 2018
Appropriation / Budget Activity / Budget Sub Activity: 3021F: Space Procurement, Air Force / BA 01: Space Procurement, Air Force / BSA 1: Space Programs	**P-1 Line Item Number / Title:** ADV555 / Advanced EHF

ID Code (A=Service Ready, B=Not Service Ready): A	Program Elements for Code B Items: N/A	Other Related Program Elements: 0605431F
Line Item MDAP/MAIS Code: 261		

Resource Summary	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	To Complete	Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	-	645.569	56.974	29.829	0.000	29.829	31.894	17.240	0.000	0.000	-	781.506
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	-	645.569	56.974	29.829	0.000	29.829	31.894	17.240	0.000	0.000	-	781.506
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**-**	**645.569**	**56.974**	**29.829**	**0.000**	**29.829**	**31.894**	**17.240**	**0.000**	**0.000**	**-**	**781.506**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Flyaway Unit Cost *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-

Description:

Develop and acquire Advanced Extremely High Frequency (AEHF) Military Satellite Communications (MILSATCOM) satellites, mission control segment and cryptography for survivable, anti-jam, worldwide, secure communications for the strategic and tactical warfighter. AEHF satellites will replenish the existing EHF system (Milstar) providing much higher capacity and data rate (5x increase over Milstar II) capabilities. AEHF is a cooperative program that includes International Partners (Canada, the United Kingdom, and the Kingdom of the Netherlands). The AEHF procurement program element funds the Command and Control System - Consolidated (CCS-C) mission unique software and databases for AEHF 4-6 satellites. CCS-C provides launch and early orbit support and on-orbit anomaly resolution.

AEHF Space Vehicle-3 (SV-3) and SV-4 are derivatives of the first two AEHF satellites which were delivered on the AEHF System Development and Demonstration (SDD) contract (RDT&E funded). SV-3 was successfully launched on 18 Sep 2013. SV-4 has a projected launch availability of 1QFY19.

SVs 5 and 6 are being procured under the Department of Defense's Efficient Space Procurement (ESP) approach which enables stable production and strategic sub-tier management through the block buy of space vehicles employing fixed-price contracting. The AEHF block buy of two satellites enables savings by reducing the effect of obsolescence and production breaks, allowing for economic buying of components, and optimizing production resources. Additionally, ESP enables cost efficiencies with the prime and subcontractor team as well as predictability for the space industrial base. SV-5 has a projected launch availability of 4QFY19. SV-6 has a projected launch availability of 2QFY20.

The flyaway unit cost is not included on P-40 exhibit because there are multiple P-5 Cost Analysis exhibits.

As of the FY2016 PB submission, space programs' satellite procurement funding has been re-categorized from appropriation 3020, Missile Procurement Air Force (MPAF) to appropriation 3021, Space Procurement Air Force (SPAF), in FY2016 and beyond. Total MPAF/SPAF procurement funding is $5,723.230M. Total AEHF SV3 SV4 MPAF/SPAF funds are $3,095.260M. Total AEHF SV5 SV6 MPAF/SPAF funds are $2,627.970M.

Funding for this exhibit is contained in PE 1203604F.

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

Exhibit P-40, Budget Line Item Justification: PB 2019 Air Force		Date: February 2018
Appropriation / Budget Activity / Budget Sub Activity: 3021F: Space Procurement, Air Force / BA 01: Space Procurement, Air Force / BSA 1: Space Programs	P-1 Line Item Number / Title: ADV555 / Advanced EHF	
ID Code (A=Service Ready, B=Not Service Ready): A	Program Elements for Code B Items: N/A	Other Related Program Elements: 0605431F
Line Item MDAP/MAIS Code: 261		

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."

Exhibit P-40, Budget Line Item Justification: PB 2019 Air Force	Date: February 2018
Appropriation / Budget Activity / Budget Sub Activity: 3021F: Space Procurement, Air Force / BA 01: Space Procurement, Air Force / BSA 1: Space Programs	**P-1 Line Item Number / Title:** ADV555 / Advanced EHF
ID Code (A=Service Ready, B=Not Service Ready): A	**Program Elements for Code B Items:** N/A
Other Related Program Elements: 0605431F	
Line Item MDAP/MAIS Code: 261	

Exhibits Schedule					Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/ MAIS Code	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*
P-5	AEHF SV3 SV4		A		- / -	- / 55.466	- / -	- / -	- / -	- / -
P-5	AEHF SV5 SV6		A		- / -	- / 590.103	- / 56.974	- / 29.829	- / -	- / 29.829
P-40	**Total Gross/Weapon System Cost**				**- / -**	**- / 645.569**	**- / 56.974**	**- / 29.829**	**- / 0.000**	**- / 29.829**

*Title represents 1) the Number / Title for Items; 2) the Number / Title [DODIC] for Ammunition; and/or 3) the Number / Title (Modification Type) for Modifications.

Note: Totals in this Exhibit P-40 set may not be exact or sum exactly due to rounding.

Justification:
In FY 2019 AEHF will continue funding efforts such as aspects of the SV 5-6 production block buy, technical support to include obsolescence/Diminishing Manufacturing Sources (DMS) studies, systems engineering and integration (SE&I) and AEHF Calibration Facility/Interim Command and Control (ACF/IC2) test asset support. Rapidly respond to implement system resiliency and situational awareness necessary to operate in the contested space domain. Activities may include, but are not limited to program office support, studies, technical analysis, prototyping, etc.

On 31 Oct 2013, a Fixed-Price Incentive (Firm Target) contract for the AEHF SV 5/6 Production and Launch Operations was definitized, with a period of performance from fiscal years 2012 through 2021. The maximum total program funding liability is $2.232 billion (includes $227M in FY11 advanced procurement funds).

Exhibit P-5, Cost Analysis: PB 2019 Air Force		Date: February 2018
Appropriation / Budget Activity / Budget Sub Activity: 3021F / 01 / 1	**P-1 Line Item Number / Title:** ADV555 / Advanced EHF	**Item Number / Title [DODIC]:** AEHF SV3 SV4
ID Code (A=Service Ready, B=Not Service Ready) : A		**MDAP/MAIS Code:**

Resource Summary	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	-	55.466	-	-	-	-
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	-	55.466	-	-	-	-
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**-**	**55.466**	**-**	**-**	**-**	**-**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)						
Initial Spares *($ in Millions)*	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Millions)*	-	-	-	-	-	-

Note: Subtotals or Totals in this Exhibit P-5 may not be exact or sum exactly due to rounding.

Cost Elements	Prior Years			FY 2017			FY 2018			FY 2019 Base			FY 2019 OCO			FY 2019 Total		
	Unit Cost *($ M)*	Qty *(Each)*	Total Cost *($ M)*	Unit Cost *($ M)*	Qty *(Each)*	Total Cost *($ M)*	Unit Cost *($ M)*	Qty *(Each)*	Total Cost *($ M)*	Unit Cost *($ M)*	Qty *(Each)*	Total Cost *($ M)*	Unit Cost *($ M)*	Qty *(Each)*	Total Cost *($ M)*	Unit Cost *($ M)*	Qty *(Each)*	Total Cost *($ M)*
Space Vehicle - AEHF SV3 SV4 Cost																		
Non Recurring Cost																		
Enterprise SE&I	-	-	-	-	-	1.479	-	-	-	-	-	-	-	-	-	-	-	-
Technical Mission Analysis	-	-	-	-	-	10.764	-	-	-	-	-	-	-	-	-	-	-	-
NSA Production Support	-	-	-	-	-	0.925	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Non Recurring Cost	-	-	-	-	-	*13.168*	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Space Vehicle - AEHF SV3 SV4 Cost	**-**	**-**	**-**	**-**	**-**	***13.168***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Checkout and Launch - AEHF SV3 SV4 Cost																		
AEHF SV 4 Launch Support Services/Launch Readiness	-	-	-	-	-	40.154	-	-	-	-	-	-	-	-	-	-	-	-
AEHF SV 3-4 Satellite Transportation for Launch	-	-	-	-	-	1.394	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Checkout and Launch - AEHF SV3 SV4 Cost	**-**	**-**	**-**	**-**	**-**	***41.548***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Support - AEHF SV3 SV4 Cost																		
FFRDC	-	-	-	-	-	0.000	-	-	-	-	-	-	-	-	-	-	-	-
A&AS	-	-	-	-	-	0.000	-	-	-	-	-	-	-	-	-	-	-	-
Other Support	-	-	-	-	-	0.750	-	-	-	-	-	-	-	-	-	-	-	-

Exhibit P-5, Cost Analysis: PB 2019 Air Force		Date: February 2018
Appropriation / Budget Activity / Budget Sub Activity: 3021F / 01 / 1	P-1 Line Item Number / Title: ADV555 / Advanced EHF	Item Number / Title [DODIC]: AEHF SV3 SV4
ID Code (A=Service Ready, B=Not Service Ready) : A	MDAP/MAIS Code:	

Note: Subtotals or Totals in this Exhibit P-5 may not be exact or sum exactly due to rounding.

Cost Elements	Prior Years			FY 2017			FY 2018			FY 2019 Base			FY 2019 OCO			FY 2019 Total		
	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)
Subtotal: Support - AEHF SV3 SV4 Cost	-	-	-	-	-	***0.750***	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost	-	-	-	-	-	**55.466**	-	-	-	-	-	-	-	-	-	-	-	-

Remarks:
Total AEHF SV3 SV4 funds are $3,095.260M.

Exhibit P-5, Cost Analysis: PB 2019 Air Force		Date: February 2018
Appropriation / Budget Activity / Budget Sub Activity: 3021F / 01 / 1	**P-1 Line Item Number / Title:** ADV555 / Advanced EHF	**Item Number / Title [DODIC]:** AEHF SV5 SV6
ID Code (A=Service Ready, B=Not Service Ready) : A		**MDAP/MAIS Code:**

Resource Summary	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	-	590.103	56.974	29.829	-	29.829
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	-	590.103	56.974	29.829	-	29.829
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**-**	**590.103**	**56.974**	**29.829**	**-**	**29.829**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)						
Initial Spares *($ in Millions)*	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Millions)*	-	-	-	-	-	-

Note: Subtotals or Totals in this Exhibit P-5 may not be exact or sum exactly due to rounding.

Cost Elements	Prior Years			FY 2017			FY 2018			FY 2019 Base			FY 2019 OCO			FY 2019 Total		
	Unit Cost *($ M)*	Qty *(Each)*	Total Cost *($ M)*	Unit Cost *($ M)*	Qty *(Each)*	Total Cost *($ M)*	Unit Cost *($ M)*	Qty *(Each)*	Total Cost *($ M)*	Unit Cost *($ M)*	Qty *(Each)*	Total Cost *($ M)*	Unit Cost *($ M)*	Qty *(Each)*	Total Cost *($ M)*	Unit Cost *($ M)*	Qty *(Each)*	Total Cost *($ M)*
Space Vehicle - SV5 SV6 Cost																		
Recurring Cost																		
AEHF SV 5-6 Block Buy	-	-	-	-	-	534.612	-	-	-	-	-	-	-	-	-	-	-	-
Enterprise SE&I	-	-	-	-	-	11.029	-	-	12.773	-	-	4.802	-	-	-	-	-	4.802
Technical Mission Analysis	-	-	-	-	-	14.761	-	-	18.039	-	-	9.358	-	-	-	-	-	9.358
ACF/IC2 Test Asset Support	-	-	-	-	-	9.251	-	-	9.093	-	-	9.597	-	-	-	-	-	9.597
Subtotal: Recurring Cost	-	-	-	-	-	*569.653*	-	-	*39.905*	-	-	*23.757*	-	-	-	-	-	*23.757*
Subtotal: Space Vehicle - SV5 SV6 Cost	**-**	**-**	**-**	**-**	**-**	***569.653***	**-**	**-**	***39.905***	**-**	**-**	***23.757***	**-**	**-**	**-**	**-**	**-**	***23.757***
Checkout and Launch - SV5 SV6 Cost																		
AEHF SV 5-6 Propellent	-	-	-	-	-	-	-	-	7.861	-	-	-	-	-	-	-	-	-
AEHF Spectrum Management	-	-	-	-	-	0.166	-	-	0.176	-	-	0.176	-	-	-	-	-	0.176
AEHF SV 5-6 Launch Support Services/Launch Readiness	-	-	-	-	-	0.531	-	-	0.000	-	-	1.671	-	-	-	-	-	1.671
Command & Control System-Consolidated (CCS-C) Launch Support AEHF 5-6	-	-	-	-	-	0.000	-	-	-	-	-	-	-	-	-	-	-	-
AEHF SV 5-6 Satellite Transportation for Launch	-	-	-	-	-	0.000	-	-	1.685	-	-	-	-	-	-	-	-	-

Exhibit P-5, Cost Analysis: PB 2019 Air Force		Date: February 2018
Appropriation / Budget Activity / Budget Sub Activity: 3021F / 01 / 1	P-1 Line Item Number / Title: ADV555 / Advanced EHF	Item Number / Title [DODIC]: AEHF SV5 SV6
ID Code (A=Service Ready, B=Not Service Ready) : A	MDAP/MAIS Code:	

Note: Subtotals or Totals in this Exhibit P-5 may not be exact or sum exactly due to rounding.

Cost Elements	Prior Years			FY 2017			FY 2018			FY 2019 Base			FY 2019 OCO			FY 2019 Total		
	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)
Subtotal: Checkout and Launch - SV5 SV6 Cost	**-**	**-**	**-**	**-**	**-**	***0.697***	**-**	**-**	***9.722***	**-**	**-**	***1.847***	**-**	**-**	**-**	**-**	**-**	***1.847***
Support - SV5 SV6 Cost																		
FFRDC	-	-	-	-	-	0.000	-	-	2.400	-	-	0.665	-	-	-	-	-	0.665
A&AS	-	-	-	-	-	19.753	-	-	4.628	-	-	3.260	-	-	-	-	-	3.260
Other Support	-	-	-	-	-	0.000	-	-	0.319	-	-	0.300	-	-	-	-	-	0.300
Subtotal: Support - SV5 SV6 Cost	**-**	**-**	**-**	**-**	**-**	***19.753***	**-**	**-**	***7.347***	**-**	**-**	***4.225***	**-**	**-**	**-**	**-**	**-**	***4.225***
Gross/Weapon System Cost	**-**	**-**	**-**	**-**	**-**	**590.103**	**-**	**-**	**56.974**	**-**	**-**	**29.829**	**-**	**-**	**-**	**-**	**-**	**29.829**

Remarks:
Total AEHF SV5 SV6 funds are $2,627.970M.

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Exhibit P-40, Budget Line Item Justification: PB 2019 Air Force	Date: February 2018
Appropriation / Budget Activity / Budget Sub Activity: 3021F: Space Procurement, Air Force / BA 01: Space Procurement, Air Force / BSA 1: Space Programs	**P-1 Line Item Number / Title:** AFSCOM / AF Satellite Comm System

ID Code (A=Service Ready, B=Not Service Ready): B	Program Elements for Code B Items: 0305110F	Other Related Program Elements: N/A

Line Item MDAP/MAIS Code: N/A

Resource Summary	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	To Complete	Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	27.773	37.281	57.516	35.400	0.000	35.400	56.298	48.376	49.359	50.284	-	362.287
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	27.773	37.281	57.516	35.400	0.000	35.400	56.298	48.376	49.359	50.284	-	362.287
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**27.773**	**37.281**	**57.516**	**35.400**	**0.000**	**35.400**	**56.298**	**48.376**	**49.359**	**50.284**	**-**	**362.287**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Flyaway Unit Cost *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-

Description:

The Air Force Satellite Control Network (AFSCN) is a satellite ground terminal network comprised of two communication nodes (Schriever AFB & Vandenberg AFB) and 15 antenna systems. The antennas are distributed around the world at seven locations -- Vandenberg Tracking Station (VTS), Diego Garcia Station (DGS), Guam Tracking Station (GTS), Hawaii Tracking Station (HTS), New Hampshire Tracking Station (NHS), Thule Tracking Station (TTS), and Telemetry and Commanding Station (TCS) at RAF Oakhanger, England -- to ensure global coverage for over 170 satellites in various orbits operating in a congested and contested environment. The AFSCN conducts an average of 450 satellite contacts per day supporting Positioning, Navigation and Timing (PNT); Intelligence, Surveillance and Reconnaissance (ISR); Missile Warning; Communications; Weather; and Research and Development (R&D) satellites for Department of Defense (DoD), Intelligence Community (IC), and National Aeronautics and Space Administration (NASA) operations. While most of the 450 satellite contacts/day are routine command and control (C2) activities, the AFSCN is also used for satellite emergencies (e.g. tumbling satellite) because its high power antennas are often the only earthbound assets that can contact a non-responsive satellite to re-establish command & control. During FY 2017, the AFSCN supported 14 space vehicle emergencies resulting in the preservation of over $4.97B worth of satellites. In addition to routine and emergency satellite operations C2, the AFSCN provides support to launch vehicle and early orbit operations, ensuring worldwide antennas receive telemetry and transmit commands to newly orbiting satellites to initiate early orbit checkout. During FY 2017, the AFSCN supported 26 launches delivering $14.2B worth of satellites to their operational orbits. Finally, the AFSCN provides Factory Compatibility Testing (FCT) to ensure satellites and launch vehicles can communicate via the AFSCN before the satellite is launched. These funds are used to procure modernized equipment and SE&I for the AFSCN to ensure the capability is available to support DoD, Intelligence community, and civil users. Funds may be used to address Diminishing Manufacturing Sources (DMS) issues, support Enterprise Ground Service (EGS), Commercial Augmentation, and cybersecurity operations.

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."

Principal efforts include:

AFSCN Interim Supply Support: procures support services, peculiar and common support materials, and required re-procurement data for the Consolidated Air Force Satellite Control Network Modifications, Maintenance and Operations (CAMMO) Contract, and to transition to government supply support.

Exhibit P-40, Budget Line Item Justification: PB 2019 Air Force		Date: February 2018
Appropriation / Budget Activity / Budget Sub Activity: 3021F: Space Procurement, Air Force / BA 01: Space Procurement, Air Force / BSA 1: Space Programs	P-1 Line Item Number / Title: AFSCOM / AF Satellite Comm System	
ID Code (A=Service Ready, B=Not Service Ready): B	Program Elements for Code B Items: 0305110F	Other Related Program Elements: N/A
Line Item MDAP/MAIS Code: N/A		

AFSCN Commodity Procurement: The Air Force will use various contract vehicles to address the highest priority concerns/issues. Obsolescence and sustainment "worst actors" are prioritized annually in order of criticality to the mission. The potential for failed satellite contacts drives priority. In FY 2019, funds are planned to be used for Defensive Cyber Operations activities and other Cybersecurity related projects. Other FYDP projects include: Authentication, Authorization, Auditing/Host Based Security System (AAA/HBSS) implementation to external users, AFSCN test bed (ATB) replacements, continued cyber defense work, network automation, moving the ATB from a leased contractor facility to a government facility, Range/Network/Communication obsolescence replacements, and Multi-band & Phased Array projects.

Remote Tracking Station (RTS) Block Change (RBC): The RBC Program was initiated in Dec 2001 to modernize the legacy system. The RBC program replaces legacy remote ground antenna systems that have reached end of life. To date, RBC systems have been installed at VTS, DGS, TCS, GTS, HTS, NHS, and TTS. TTS completed in 1Q FY 2016. In addition, the Air Force is upgrading the electronics in the remaining eight serviceable systems. This "hybrid" architecture couples the RBC electronics with existing antennas and normalizes electronics across the network. A prototype effort was implemented in FY 2012 to validate the approach and the first two hybrid articles were awarded in FY 2013 to upgrade legacy systems at GTS and HTS. HTS Hybrid was operationally accepted in July 2017. A third article was awarded in FY 2014 to upgrade the legacy system at VTS and funds were applied in FY 2015 to DGS, TTS and FY 2016 to TCS-A, NHS-A. This project is required to prevent a significant increase to sustainment costs and decrease in operational capability of the already obsolete Automated Remote Tracking Station (ARTS) system. There are several significant operational issues that must be corrected as soon as possible within the ARTS system and any delay to the RBC Hybridization of sites requires that ARTS be maintained and sustained well past its expected life. If RBC Hybridization is not sufficiently funded to keep ARTS operationally viable, the system will experience increased failure rates and lost contacts over time with the potential to impact or lose operational capability of on-orbit payloads that rely on the AFSCN for command and control. The antiquated AFSCN system is already operating at the very edge of its capacity supporting over 170 satellites. The RBC Hybridization project is intended to bring the system up to modern standards by FY 2022, and any delay in funding will push that completion date farther into the future, endangering additional satellite contacts and payloads. In addition, the Enhanced High Power Amplifier (EHPA) spacecraft anomaly resolution system will provide high power capability at four sites (GTS, VTS, NHS, and DGS), replaces obsolete parts, and enables emergency satellite operations. The first article delivery of EHPA at GTS is scheduled to complete in FY 2018. The remaining EHPA procurements and deliveries (VTS, NHS, and DGS) will be executed as separate projects to be requested in future budget years.

The FY 2019 funding request was reduced by $8.816 million to account for the availability of prior year execution balances.

Funding for this exhibit contained in PE 1203110F.

Exhibit P-40, Budget Line Item Justification: PB 2019 Air Force	Date: February 2018
Appropriation / Budget Activity / Budget Sub Activity: 3021F: Space Procurement, Air Force / BA 01: Space Procurement, Air Force / BSA 1: Space Programs	**P-1 Line Item Number / Title:** AFSCOM / AF Satellite Comm System
ID Code (A=Service Ready, B=Not Service Ready): B	**Program Elements for Code B Items:** 0305110F / **Other Related Program Elements:** N/A
Line Item MDAP/MAIS Code: N/A	

Exhibits Schedule					Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/ MAIS Code	Quantity / Total Cost (Each) / ($ M)	Quantity / Total Cost (Each) / ($ M)	Quantity / Total Cost (Each) / ($ M)	Quantity / Total Cost (Each) / ($ M)	Quantity / Total Cost (Each) / ($ M)	Quantity / Total Cost (Each) / ($ M)
P-40a	AF Satellite Comm System				- / 27.773	- / 17.412	- / 25.175	- / 0.000	- / 0.000	- / 0.000
P-5	AF Satellite Comm System		B		- / -	- / 19.869	- / 32.341	- / 35.400	- / -	- / 35.400
P-40	**Total Gross/Weapon System Cost**				**- / 27.773**	**- / 37.281**	**- / 57.516**	**- / 35.400**	**- / 0.000**	**- / 35.400**

Exhibits Schedule					FY 2020	FY 2021	FY 2022	FY 2023	To Complete	Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/ MAIS Code	Quantity / Total Cost (Each) / ($ M)	Quantity / Total Cost (Each) / ($ M)	Quantity / Total Cost (Each) / ($ M)	Quantity / Total Cost (Each) / ($ M)	Quantity / Total Cost (Each) / ($ M)	Quantity / Total Cost (Each) / ($ M)
P-40a	AF Satellite Comm System				- / 19.919	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 90.279
P-5	AF Satellite Comm System		B		- / -	- / -	- / -	- / -	- / -	- / -
P-40	**Total Gross/Weapon System Cost**				**- / 56.298**	**- / 48.376**	**- / 49.359**	**- / 50.284**	**- / -**	**- / 362.287**

*Title represents 1) the Number / Title for Items; 2) the Number / Title [DODIC] for Ammunition; and/or 3) the Number / Title (Modification Type) for Modifications. Title represents the P-40a Title when only the P-40a Summary/Total is shown.

Note: Totals in this Exhibit P-40 set may not be exact or sum exactly due to rounding.

Justification:

1) AFSCN Interim Supply Support (P-5): FY 2019 funding provides peculiar and common support material, required re-procurement data, and interim supply support management. In addition, funds procure the most urgently needed capital equipment replacements for items that exceed the O&M dollar threshold. This equipment replaces items such as, but not limited to, high power amplifiers, processors, archival event recorders, and router switches, AFSCN Link Projection System (ALPS) equipment, legacy Electronic Scheduling Dissemination (ESD) 2.7 equipment and Diminishing Manufacturing Sources and Material Shortages (DMSMS) items which are at the top of the sustainers "worst actors" list and account for significant maintenance effort, down time, and lost or failed contacts.

2) AFSCN Commodity Procurement (P-5): FY 2019 funds are critical to ensuring telemetry, tracking, and commanding are provided for over 170 satellites and that satellite emergencies requiring high-power antennas can be supported. These projects include Migration to Commercial Augmentation, EGS and Self Sufficient Transportables, Communication, Cyber and Range Upgrades.

3) RBC (P3a): No FY 2019 funding requested. Ensures telemetry, tracking, and commanding are provided for over 170 satellites and that satellite emergencies requiring high-power antennas can be supported.

4) FY 2019 funds will continue program office support and other related support activities. Rapidly respond to implement system resiliency and situational awareness necessary to operate in the contested space domain. Activities may include, but are not limited to program office support, studies, technical analysis, prototyping, etc.

Exhibit P-40a, Budget Item Justification For Aggregated Modification Items: PB 2019 Air Force		Date: February 2018
Appropriation / Budget Activity / Budget Sub Activity: 3021F / 01 / 1	**P-1 Line Item Number / Title:** AFSCOM / AF Satellite Comm System	**Aggregated Modification Items Title:** AF Satellite Comm System

Item Number / Title	ID CD	MDAP/ MAIS Code	Prior Years			FY 2017			FY 2018			FY 2019 Base			FY 2019 OCO			FY 2019 Total		
			Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)
01-RBC / Remote Tracking Station Block Change (RBC)			-	-	27.773	-	-	17.412	-	-	25.175	-	-	-	-	-	-	-	-	-
Total			**-**	**-**	**27.773**	**-**	**-**	**17.412**	**-**	**-**	**25.175**	**-**	**-**	**0.000**	**-**	**-**	**0.000**	**-**	**-**	**0.000**

Item Number / Title	ID CD	MDAP/ MAIS Code	FY 2020			FY 2021			FY 2022			FY 2023			To Complete			Total Cost		
			Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)
01-RBC / Remote Tracking Station Block Change (RBC)			-	-	19.919	-	-	0.000	-	-	-	-	-	-	-	-	-	-	-	90.279
Total			**-**	**-**	**19.919**	**-**	**-**	**0.000**	**-**	**-**	**0.000**	**-**	**-**	**0.000**	**-**	**-**	**0.000**	**-**	**-**	**90.279**

Note: Subtotals or Totals in this Exhibit P-40a may not be exact or sum exactly, due to rounding.

Modification Information:

Item Number / Title	Models of Systems Affected	Modification Type
01-RBC / Remote Tracking Station Block Change (RBC)	Air Force Satellite Control Network	Capability Improvement

Exhibit P-5, Cost Analysis: PB 2019 Air Force		Date: February 2018
Appropriation / Budget Activity / Budget Sub Activity: 3021F / 01 / 1	**P-1 Line Item Number / Title:** AFSCOM / AF Satellite Comm System	**Item Number / Title [DODIC]:** AF Satellite Comm System
ID Code (A=Service Ready, B=Not Service Ready) : B	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	-	19.869	32.341	35.400	-	35.400
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	-	19.869	32.341	35.400	-	35.400
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**-**	**19.869**	**32.341**	**35.400**	**-**	**35.400**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)						
Initial Spares *($ in Millions)*	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Millions)*	-	-	-	-	-	-

Note: Subtotals or Totals in this Exhibit P-5 may not be exact or sum exactly due to rounding.

Cost Elements	Prior Years			FY 2017			FY 2018			FY 2019 Base			FY 2019 OCO			FY 2019 Total		
	Unit Cost *($ M)*	Qty *(Each)*	Total Cost *($ M)*	Unit Cost *($ M)*	Qty *(Each)*	Total Cost *($ M)*	Unit Cost *($ M)*	Qty *(Each)*	Total Cost *($ M)*	Unit Cost *($ M)*	Qty *(Each)*	Total Cost *($ M)*	Unit Cost *($ M)*	Qty *(Each)*	Total Cost *($ M)*	Unit Cost *($ M)*	Qty *(Each)*	Total Cost *($ M)*
Hardware - AF Satellite Control Network Cost																		
Non Recurring Cost																		
Commodities Procurement	-	-	-	-	-	-	-	-	12.513	-	-	6.555	-	-	-	-	-	6.555
Subtotal: Non Recurring Cost	-	-	-	-	-	-	-	-	*12.513*	-	-	*6.555*	-	-	-	-	-	*6.555*
Subtotal: Hardware - AF Satellite Control Network Cost	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	***12.513***	**-**	**-**	***6.555***	**-**	**-**	**-**	**-**	**-**	***6.555***
Logistics - AFSCNS Cost																		
Recurring Cost																		
INTERIM SUPPLY SPT - Labor	-	-	-	-	-	-	-	-	1.110	-	-	0.888	-	-	-	-	-	0.888
INTERIM SUPPLY SPT -- Materiel	-	-	-	-	-	-	-	-	1.665	-	-	1.333	-	-	-	-	-	1.333
Technical Mission Analysis	-	-	-	-	-	8.000	-	-	5.636	-	-	8.427	-	-	-	-	-	8.427
Test & Evaluation	-	-	-	-	-	1.173	-	-	0.534	-	-	1.550	-	-	-	-	-	1.550
Enterprise Systems Engineering and Integration (SE&I)	-	-	-	-	-	5.426	-	-	5.891	-	-	11.849	-	-	-	-	-	11.849
Subtotal: Recurring Cost	-	-	-	-	-	*14.599*	-	-	*14.836*	-	-	*24.047*	-	-	-	-	-	*24.047*
Subtotal: Logistics - AFSCNS Cost	**-**	**-**	**-**	**-**	**-**	***14.599***	**-**	**-**	***14.836***	**-**	**-**	***24.047***	**-**	**-**	**-**	**-**	**-**	***24.047***
Support - Support End Item Cost																		

Exhibit P-5, Cost Analysis: PB 2019 Air Force		Date: February 2018
Appropriation / Budget Activity / Budget Sub Activity: 3021F / 01 / 1	P-1 Line Item Number / Title: AFSCOM / AF Satellite Comm System	Item Number / Title [DODIC]: AF Satellite Comm System
ID Code (A=Service Ready, B=Not Service Ready) : B	MDAP/MAIS Code:	

Note: Subtotals or Totals in this Exhibit P-5 may not be exact or sum exactly due to rounding.

Cost Elements	Prior Years			FY 2017			FY 2018			FY 2019 Base			FY 2019 OCO			FY 2019 Total		
	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)
Advisory & Assistance Services (A&AS)	-	-	-	-	-	2.932	-	-	2.390	-	-	2.037	-	-	-	-	-	2.037
Other Support	-	-	-	-	-	0.595	-	-	0.798	-	-	0.912	-	-	-	-	-	0.912
FFRDC	-	-	-	-	-	1.743	-	-	1.804	-	-	1.849	-	-	-	-	-	1.849
Subtotal: Support - Support End Item Cost	**-**	**-**	**-**	**-**	**-**	***5.270***	**-**	**-**	***4.992***	**-**	**-**	***4.798***	**-**	**-**	**-**	**-**	**-**	***4.798***
Gross/Weapon System Cost	**-**	**-**	**-**	**-**	**-**	**19.869**	**-**	**-**	**32.341**	**-**	**-**	**35.400**	**-**	**-**	**-**	**-**	**-**	**35.400**

Exhibit P-40, Budget Line Item Justification: PB 2019 Air Force	Date: February 2018
Appropriation / Budget Activity / Budget Sub Activity: 3021F: Space Procurement, Air Force / BA 01: Space Procurement, Air Force / BSA 1: Space Programs	**P-1 Line Item Number / Title:** CTRSPC / Counterspace Systems

ID Code (A=Service Ready, B=Not Service Ready): B	Program Elements for Code B Items: 1206421F	Other Related Program Elements: N/A

Line Item MDAP/MAIS Code: N/A

Resource Summary	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	To Complete	Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	-	46.884	28.798	1.121	0.000	1.121	0.000	0.000	0.000	0.000	-	76.803
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	-	46.884	28.798	1.121	0.000	1.121	0.000	0.000	0.000	0.000	-	76.803
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**-**	**46.884**	**28.798**	**1.121**	**0.000**	**1.121**	**0.000**	**0.000**	**0.000**	**0.000**	**-**	**76.803**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Flyaway Unit Cost *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-

Description:

The Counter Communications System (CCS) Pre-planned Product Improvement (P3I) program provides expeditionary, deployable, reversible offensive space control (OCS) effects applicable across the full spectrum of conflict. It prevents adversary satellite communications (SATCOM) in the Area of Responsibility (AOR) including Command and Control (C2), Early Warning, and Propaganda; and hosts Rapid Reaction Capabilities in response to Urgent Needs. Acquisition Decision Memorandum (24 April 2009) directed all capabilities identified in the October 2006 CCS Block 20, Joint Requirements Oversight Council (JROC) approved Capability Development Document (CDD) shall be accomplished as P3I upgrades to the CCS Block 10. No funding requested for CCS in FY 2019.

Funding for this exhibit and developmental funding for CCS is in Program Element 1206421F, BPAC 65A001 Counterspace Systems.

Bounty Hunter (BH) supports the Defensive Space Control of US systems in a specific AOR and provides the capacity to prevent effective adversary use of Command, Control, Communications, Computers, and Intelligence (C4I). The system was originally a response to Joint Urgent Operational Need. In 2013 AF Requirements Oversight Council directed incorporation of BH capabilities into a Program of Record. Funds requested in FY19 is for Bounty Hunter.

Developmental funding for BH is in Program Element 1206421F, BPAC 65A013 Bounty Hunter.

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."

Justification:

BOUNTY HUNTER (BH): All funding is for Bounty Hunter in FY 2019. Funding in FY 2019 provides equipment (e.g., emitters, antennas, spectrum analyzers) upgrades to the currently deployed BH system to counter emerging Electro-magnetic Interference (EMI), and EMI upgrades to the second BH system currently in CONUS.

Exhibit P-40, Budget Line Item Justification: PB 2019 Air Force		Date: February 2018
Appropriation / Budget Activity / Budget Sub Activity: 3021F: Space Procurement, Air Force / BA 01: Space Procurement, Air Force / BSA 1: Space Programs	P-1 Line Item Number / Title: CTRSPC / Counterspace Systems	
ID Code (A=Service Ready, B=Not Service Ready): B	Program Elements for Code B Items: 1206421F	Other Related Program Elements: N/A
Line Item MDAP/MAIS Code: N/A		

Rapidly respond to implement system resiliency and situational awareness necessary to operate in the contested space domain. Activities may include, but are not limited to program office support, studies, technical analysis, prototyping, etc.

COUNTER COMMUNICATIONS SYSTEM (CCS): No funding requested for CCS in FY 2019.

Exhibit P-40, Budget Line Item Justification: PB 2019 Air Force	Date: February 2018
Appropriation / Budget Activity / Budget Sub Activity: 3021F: Space Procurement, Air Force / BA 01: Space Procurement, Air Force / BSA 1: Space Programs	**P-1 Line Item Number / Title:** FBLOST / Family of Beyond Line-of-Sight Terminals

ID Code (A=Service Ready, B=Not Service Ready): A	Program Elements for Code B Items: N/A	Other Related Program Elements: 0303601F

Line Item MDAP/MAIS Code: 199

Resource Summary	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	To Complete	Total
Procurement Quantity *(Units in Each)*	19	-	-	-	-	-	-	-	-	-	-	19
Gross/Weapon System Cost *($ in Millions)*	52.192	88.963	146.972	27.867	0.000	27.867	32.105	8.497	0.000	88.913	-	445.509
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	52.192	88.963	146.972	27.867	0.000	27.867	32.105	8.497	0.000	88.913	-	445.509
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**52.192**	**88.963**	**146.972**	**27.867**	**0.000**	**27.867**	**32.105**	**8.497**	**0.000**	**88.913**	**-**	**445.509**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares *($ in Millions)*	-	12.078	3.598	20.583	-	20.583	0.057	-	-	-	-	36.316
Flyaway Unit Cost *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Millions)*	2.747	-	-	-	-	-	-	-	-	-	-	23.448

Description:

The Family of Advanced Beyond Line-of-Sight Terminals (FAB-T) program replaces legacy Milstar terminals and will provide Extremely High Frequency (EHF), protected high data rate communication for nuclear and conventional forces to include Presidential and National Voice Conferencing (PNVC).

FAB-T will provide this new, highly secure, state-of-the-art capability for DoD platforms to include strategic platforms and airborne/ground command posts via Milstar, AEHF, and Enhanced Polar System (EPS) satellites. FAB-T terminals will also support the critical command and control (C2) of the Milstar, AEHF and EPS satellite constellations. In June 2014 the Air Force down-selected to Raytheon for production of FAB-T Command Post Terminals (CPT). Production contract options to produce CPT terminals were exercised after a successful Milestone C decision was approved September 1, 2015. In FY 2019, FAB-T will continue to pursue activities that ensure FAB-T terminal interoperability with the full AEHF satellite constellation.

PNVC communication Baseband Interface Group (BIG) equipment purchases will provide voice encoding/decoding and encryption/decryption via KY-280s for use with Milstar and Advanced EHF satellite communication networks. The equipment will support Senior Leader Conferencing via Survivable Emergency Communication Networks (SECN) digitization and support, secure, survivable voice conferencing capability for the President and national senior leaders.

In the prior years through FY 2014, FAB-T was in OPAF Line Item Number 836780.
In FY 2015 FAB-T was in OPAF Line Item Number 836700.
This exhibit is funded in PE 1203001F.

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."

Exhibit P-40, Budget Line Item Justification: PB 2019 Air Force	Date: February 2018
Appropriation / Budget Activity / Budget Sub Activity: 3021F: Space Procurement, Air Force / BA 01: Space Procurement, Air Force / BSA 1: Space Programs	**P-1 Line Item Number / Title:** FBLOST / Family of Beyond Line-of-Sight Terminals

ID Code (A=Service Ready, B=Not Service Ready): A	Program Elements for Code B Items: N/A	Other Related Program Elements: 0303601F

Line Item MDAP/MAIS Code: 199

Exhibits Schedule					Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/ MAIS Code	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*
P-5	Family of Beyond Line-of-Sight Terminals	P-5a, P-21	A		19 / 52.192	- / 88.963	- / 146.972	- / 27.867	- / 0.000	- / 27.867
P-40	**Total Gross/Weapon System Cost**				**19 / 52.192**	**- / 88.963**	**- / 146.972**	**- / 27.867**	**- / 0.000**	**- / 27.867**

*Title represents 1) the Number / Title for Items; 2) the Number / Title [DODIC] for Ammunition; and/or 3) the Number / Title (Modification Type) for Modifications.

Note: Totals in this Exhibit P-40 set may not be exact or sum exactly due to rounding.

Justification:
In FY 2019, FAB-T will continue to pursue activities that ensure FAB-T terminal interoperability with the full AEHF satellite constellation, conduct site surveys, perform install activities, provide Interim Contractor Support for the existing fielded terminals. Continue program office support and other activities that may include, but are not limited to studies, technical analysis, etc. Rapidly respond to implement system resiliency and situational awareness necessary to operate in the contested space domain. Activities may include, but are not limited to program office support, studies, technical analysis, prototyping, etc.

Exhibit P-5, Cost Analysis: PB 2019 Air Force		Date: February 2018
Appropriation / Budget Activity / Budget Sub Activity: 3021F / 01 / 1	**P-1 Line Item Number / Title:** FBLOST / Family of Beyond Line-of-Sight Terminals	**Item Number / Title [DODIC]:** Family of Beyond Line-of-Sight Terminals
ID Code (A=Service Ready, B=Not Service Ready) : A		**MDAP/MAIS Code:**

Resource Summary	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Procurement Quantity *(Units in Each)*	19	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	52.192	88.963	146.972	27.867	0.000	27.867
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	52.192	88.963	146.972	27.867	0.000	27.867
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**52.192**	**88.963**	**146.972**	**27.867**	**0.000**	**27.867**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)						
Initial Spares *($ in Millions)*	-	12.078	3.598	20.583	-	20.583
Gross/Weapon System Unit Cost *($ in Millions)*	2.747	-	-	-	-	-

Note: Subtotals or Totals in this Exhibit P-5 may not be exact or sum exactly due to rounding.

Cost Elements	Prior Years			FY 2017			FY 2018			FY 2019 Base			FY 2019 OCO			FY 2019 Total		
	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)
Hardware - 0303601F MILSATCOM Space; 0303001F FBLOST Cost																		
Recurring Cost																		
FAB-T Terminals (PE 33601F/33001F)(†)	2.747	19	52.192	4.094	16	65.504	4.339	26	112.826	-	-	14.767	-	-	0.000	-	-	14.767
Technical Mission Analysis	-	-	-	-	-	10.615	-	-	25.834	-	-	4.800	-	-	-	-	-	4.800
Enterprise SE&I	-	-	-	-	-	2.058	-	-	2.067	-	-	0.500	-	-	-	-	-	0.500
GFE	-	-	-	-	-	3.686	-	-	0.000	-	-	2.400	-	-	-	-	-	2.400
Subtotal: Recurring Cost	-	-	*52.192*	-	-	*81.863*	-	-	*140.727*	-	-	*22.467*	-	-	*0.000*	-	-	*22.467*
Subtotal: Hardware - 0303601F MILSATCOM Space; 0303001F FBLOST Cost	**-**	**-**	***52.192***	**-**	**-**	***81.863***	**-**	**-**	***140.727***	**-**	**-**	***22.467***	**-**	**-**	***0.000***	**-**	**-**	***22.467***
Hardware - PNVC Cost																		
Recurring Cost																		
BIG Terminal(†)	-	-	-	-	-	-	0.369	6	2.214	-	-	-	-	-	-	-	-	-
Subtotal: Recurring Cost	-	-	-	-	-	-	-	-	*2.214*	-	-	-	-	-	-	-	-	-
Subtotal: Hardware - PNVC Cost	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	***2.214***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Support - 0303001F FBLOST Cost																		
FAB-T A&AS	-	-	-	-	-	2.263	-	-	3.308	-	-	3.200	-	-	-	-	-	3.200
FAB-T Other Support	-	-	-	-	-	4.837	-	-	0.723	-	-	2.200	-	-	-	-	-	2.200
Subtotal: Support - 0303001F FBLOST Cost	**-**	**-**	**-**	**-**	**-**	***7.100***	**-**	**-**	***4.031***	**-**	**-**	***5.400***	**-**	**-**	**-**	**-**	**-**	***5.400***

Exhibit P-5, Cost Analysis: PB 2019 Air Force		Date: February 2018
Appropriation / Budget Activity / Budget Sub Activity: 3021F / 01 / 1	**P-1 Line Item Number / Title:** FBLOST / Family of Beyond Line-of-Sight Terminals	**Item Number / Title [DODIC]:** Family of Beyond Line-of-Sight Terminals
ID Code (A=Service Ready, B=Not Service Ready) : A	**MDAP/MAIS Code:**	

Note: Subtotals or Totals in this Exhibit P-5 may not be exact or sum exactly due to rounding.

Cost Elements	Prior Years			FY 2017			FY 2018			FY 2019 Base			FY 2019 OCO			FY 2019 Total		
	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)
Gross/Weapon System Cost	2.747	19	52.192	-	-	88.963	-	-	146.972	-	-	27.867	-	-	0.000	-	-	27.867

Remarks:
This P-Doc incorporates three Program Elements for FAB-T:
PE 030601F Prior years through FY 2015; PE 0303001F - FY 2016 and FY 2017; and 1203001F - FY 2018 and out.

(†) indicates the presence of a P-5a

Exhibit P-5a, Procurement History and Planning: PB 2019 Air Force		Date: February 2018
Appropriation / Budget Activity / Budget Sub Activity: 3021F / 01 / 1	P-1 Line Item Number / Title: FBLOST / Family of Beyond Line-of-Sight Terminals	Item Number / Title [DODIC]: Family of Beyond Line-of-Sight Terminals

Cost Elements	OCO	FY	Contractor and Location	Method/Type or Funding Vehicle	Location of PCO	Award Date	Date of First Delivery	Qty (Each)	Unit Cost ($ M)	Specs Avail Now?	Date Revision Available	RFP Issue Date
FAB-T Terminals (PE 33601F/33001F)(†)		2017	Raytheon / Largo, FL	Various	AFLCMC Hanscom AFB	Apr 2017	Oct 2018	16	4.094	Y	Mar 2017	Mar 2013
FAB-T Terminals (PE 33601F/33001F)(†)		2018	Raytheon / Largo, FL	Various	AFLCMC Hanscom AFB	Apr 2018	Oct 2019	26	4.339	Y	Mar 2018	Mar 2013
BIG Terminal(†)		2018	General Dynamics / Scottsdale, AZ	Various	NSA	Jan 2018	Jan 2019	6	0.369	Y	Oct 2017	

(†) indicates the presence of a P-21

Exhibit P-21, Production Schedule: PB 2019 Air Force		Date: February 2018
Appropriation / Budget Activity / Budget Sub Activity: 3021F / 01 / 1	P-1 Line Item Number / Title: FBLOST / Family of Beyond Line-of-Sight Terminals	Item Number / Title [DODIC]: Family of Beyond Line-of-Sight Terminals

Cost Elements (Units in Each)							Fiscal Year 2017												Fiscal Year 2018											BALANCE
							Calendar Year 2017												Calendar Year 2018											
OCO	MFR #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2016	BAL DUE AS OF 1 OCT	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	
FAB-T Terminals (PE 33601F/33001F)																														
Prior Years Deliveries: 19																														
	1	2017	AF	16	0	16							A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	16
	1	2018	AF	26	0	26																			A -	-	-	-	-	26
BIG Terminal																														
	2	2018	AF	6	0	6																A -	-	-	-	-	-	-	-	6
							OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	

Exhibit P-21, Production Schedule: PB 2019 Air Force		Date: February 2018
Appropriation / Budget Activity / Budget Sub Activity: 3021F / 01 / 1	P-1 Line Item Number / Title: FBLOST / Family of Beyond Line-of-Sight Terminals	Item Number / Title [DODIC]: Family of Beyond Line-of-Sight Terminals

Cost Elements (Units in Each)							Fiscal Year 2019												Fiscal Year 2020												BALANCE
							Calendar Year 2019												Calendar Year 2020													
OCO	MFR #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2018	BAL DUE AS OF 1 OCT	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	
FAB-T Terminals (PE 33601F/33001F)																															
Prior Years Deliveries: 19																															
	1	2017	AF	16	0	16	1	1	2	2	2	1	2	2	1	1	1														0
	1	2018	AF	26	0	26	-	-	-	-	-	-	-	-	-	-	-	-	1	1	2	2	2	2	2	2	3	3	3	3	0
BIG Terminal																															
	2	2018	AF	6	0	6	-	-	-	2	2	2																			0
							OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	

Exhibit P-21, Production Schedule: PB 2019 Air Force		Date: February 2018
Appropriation / Budget Activity / Budget Sub Activity: 3021F / 01 / 1	**P-1 Line Item Number / Title:** FBLOST / Family of Beyond Line-of-Sight Terminals	**Item Number / Title [DODIC]:** Family of Beyond Line-of-Sight Terminals

MFR Ref #	Manufacturer Name - Location	Production Rates (Each / Year)			Procurement Leadtime (Months)							
					Initial				Reorder			
		MSR For 2019	1-8-5 For 2019	MAX For 2019	ALT Prior to Oct 1	ALT After Oct 1	Manufacturing PLT	Total After Oct 1	ALT Prior to Oct 1	ALT After Oct 1	Manufacturing PLT	Total After Oct 1
1	Raytheon - Largo, FL	8	8	96	0	0	0	0	0	7	18	25
2	General Dynamics - Scottsdale, AZ	2	2	6	0	4	12	16	0	0	0	0

"A" in the Delivery Schedule indicates the Contract Award Date.

Note: Due to space limitations, quantities in the Exhibit P-21 delivery calendar are truncated and rounded based on the maximum quantity in the calendar as follows. If the maximum quantity is less than or equal to than 9,999, all quantities are shown as each. If the maximum quantity is between 10,000 and 999,999 all quantities are shown in thousands. If the maximum quantity is between 1,000,000 and 999,999,999 all quantities are shown in millions (rounded to the nearest thousand).If the maximum quantity is equal or greater than 1,000,000,000 all quantities are shown in billions (rounded to the nearest million).

Exhibit P-40, Budget Line Item Justification: PB 2019 Air Force	Date: February 2018
Appropriation / Budget Activity / Budget Sub Activity: 3021F: Space Procurement, Air Force / BA 01: Space Procurement, Air Force / BSA 1: Space Programs	**P-1 Line Item Number / Title:** GAP000 / Wideband Gapfiller Satellites(Space)

ID Code (A=Service Ready, B=Not Service Ready): A	Program Elements for Code B Items: N/A	Other Related Program Elements: 0605433F
Line Item MDAP/MAIS Code: 326		

Resource Summary	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	To Complete	Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	-	48.772	80.849	61.606	0.000	61.606	0.000	0.000	0.000	0.000	-	191.227
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	-	48.772	80.849	61.606	0.000	61.606	0.000	0.000	0.000	0.000	-	191.227
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**-**	**48.772**	**80.849**	**61.606**	**0.000**	**61.606**	**0.000**	**0.000**	**0.000**	**0.000**	**-**	**191.227**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Flyaway Unit Cost *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-

Description:

The Wideband Global SATCOM (WGS) System provides the DoD with high data rate military satellite communication (MILSATCOM) services in accordance with the Joint Space Management Board-approved MILSATCOM architecture (August 1996), the Joint Requirements Oversight Council (JROC)-approved MILSATCOM Capstone Requirements Document (October 1997), and JROC-approved WGS Operational Requirements Document (May 2000). This program was originally conceived to augment the near-term "bandwidth gap" in warfighter communications needs. Dual-frequency WGS satellites augment, then replace the DoD's Defense Satellite Communications System X-band service and augment one-way Global Broadcast Service Ka-band capabilities. In addition, WGS provides a high capacity two-way Ka-band service.

WGS Block I consists of satellites 1-3. These satellites were successfully launched on 10 October 2007, 3 April 2009, and 5 December 2009, respectively.

WGS Block II consists of satellites 4-6. Block II satellites are designed with slight modifications to better support the Airborne Intelligence, Surveillance and Reconnaissance mission. Satellite 4 was successfully launched on 19 January 2012. Satellite 5 was successfully launched on 24 May 2013.

A United States-Australia WGS partnership was codified in a Memorandum of Understanding (MOU) dated 14 November 2007. Australia provides funds needed to buy Space Vehicle-6 (SV-6) in exchange for access to constellation-wide (SVs 1-6) resources. Satellite 6 was successfully launched on 7 August 2013. SV-6 is not included in the Procurement Quantities in these documents.

WGS Block II Follow-On (B2FO) consists of satellites 7-10. The WGS procurement program element funds the Command and Control System - Consolidated (CCS-C) mission unique software and databases for the WGS B2FO satellites.

A multilateral partnership between the United States, Canada, Denmark, Luxembourg, the Netherlands, and New Zealand was codified in an MOU in January 2012. The United States contributions include existing and programmed infrastructure, to include the acquisition, launch, operations, and sustainment costs of WGS 1-8, and the launch, operations, and sustainment of SV-9. Other Partners' contributions fund SV-9 acquisition and support activities. Each Partner provides funds needed to buy SV-9 in exchange for access to constellation-wide (SVs 1-9) resources commensurate with its level of contribution. SV-9 is not included in the Procurement Quantities in these documents.

WGS-7 was successfully launched on 23 July 2015. WGS-8 was successfully launched on 7 December 2016. WGS-9 was successfully launched on 18 March 2017. WGS-10 will be launched in FY19.

Exhibit P-40, Budget Line Item Justification: PB 2019 Air Force		Date: February 2018
Appropriation / Budget Activity / Budget Sub Activity: 3021F: Space Procurement, Air Force / BA 01: Space Procurement, Air Force / BSA 1: Space Programs	P-1 Line Item Number / Title: GAP000 / Wideband Gapfiller Satellites(Space)	
ID Code (A=Service Ready, B=Not Service Ready): A	Program Elements for Code B Items: N/A	Other Related Program Elements: 0605433F
Line Item MDAP/MAIS Code: 326		

Discussions for potential future partnerships regarding the WGS program continue in support of National Space Policy and improved operational efficiency.

The Air Force has been working to identify opportunities for more affordable, efficient commercial satellite communications (COMSATCOM) business arrangements. Specifically, the Space and Missile Systems Center (SMC), Military Satellite Communications Systems (MILSATCOM) Directorate has developed a five phase COMSATCOM pathfinder investment strategy to burn down risk targeting affordability and performance.

In an FY2014 effort to study SATCOM capabilities to support Remotely Piloted Aircraft (RPA) requirements, the WGS program invested $8.0M in what is known as COMSATCOM Pathfinder #1. In Pathfinder #1, on-orbit commercial Ku-band transponders were purchased to support AFRICOM while demonstrating risk mitigation steps toward future innovative, affordable procurement of long term COMSATCOM capabilities.

In FY2016, Congress added $26.0M for the COMSATCOM Pathfinder effort. Pathfinder #2 will purchase commercial pre-launch transponders that will include protection features.

With FY2017 funding, the Air Force will execute Pathfinder #3. Pathfinder #3 builds on the Pathfinder #2 scope and incorporates access to commercial ground stations. The current plan for Pathfinder #3 is to use an Other Transactions Authority (OTA) contract to purchase commercial transponders and ground station hardware at a commercial site. Under the OTA, the government and contractor team will demonstrate the ability to flexibly reassign bandwidth between multiple users and work cooperatively to refine that process over a period of five years. The current interpretation of the OTA statutes within the Air Force indicates that this type of OTA requires RDT&E funds. Congress realigned $30M FY17 from SPAF to RDT&E for Pathfinder #3.

In FY2018-2019, the Air Force programmed funds for Pathfinders #4-5. The Pathfinder #4 acquisition strategy is being developed to ensure it will continue to address portions of the four goals in FY15 and one goal from FY16 that were outlined in FY15 & FY16 NDAAs. These goals were initiated in the first three Pathfinders programs. They are 1 - Cost Effective and Strategic Method to Acquire COMSATCOM; 2- Incentivize Private-sector Participation and Investment; 3- Provide Flexible (Surge) Capacity; 4- Enable Cost Accounting and Control; 5- Demonstrate potential to achieve ‘Order-of-Magnitude' improvements in COMSATCOM capability. Pathfinder #5 in conjunction with Pilot Phase #3 will demonstrate the use of commercial high throughput/capacity satellites (HTS/HCS). This demonstration will meet the objective of the "order of magnitude goal (#5) as stated above. Pathfinder #5 will need to develop, in conjunction with Pilot Phase #2 and Pilot Phase #3, the necessary interfaces for USG terminals to access the high throughput satellite capability (data packets - "bits). Pathfinder #5 will shift from only procuring bits to developing, integrating and demonstrating an architecture that enables the terminals to achieve "order of magnitude improvements only available through the use of bits.

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."

The flyaway unit cost is not included on P-40 exhibit because there are multiple P-5 Cost Analysis exhibits.

As of the FY2016 PB submission, space programs' satellite procurement funding has been re-categorized from Appropriation 3020, Missile Procurement Air Force (MPAF), to Appropriation 3021, Space Procurement Air Force (SPAF), in FY2016 and beyond. Total MPAF/SPAF procurement funding is $3,265.414M. Total WGS SV1-SV5 MPAF funds are $1,619.426M. There are no WGS SV1-SV5 SPAF funds. Total WGS Block II Follow-On (B2FO) MPAF/SPAF funds are $1,645.988M.

Funding for this exhibit is contained in PE 1203600F.

This program has associated Research Development Test and Evaluation funding in PE 1206433F.

Exhibit P-40, Budget Line Item Justification: PB 2019 Air Force	Date: February 2018
Appropriation / Budget Activity / Budget Sub Activity: 3021F: Space Procurement, Air Force / BA 01: Space Procurement, Air Force / BSA 1: Space Programs	**P-1 Line Item Number / Title:** GAP000 / Wideband Gapfiller Satellites(Space)

ID Code (A=Service Ready, B=Not Service Ready): A	Program Elements for Code B Items: N/A	Other Related Program Elements: 0605433F

Line Item MDAP/MAIS Code: 326

Exhibits Schedule					Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/ MAIS Code	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*
P-5	WGS B2FO		A		- / -	- / 48.772	- / 80.849	- / 61.606	- / -	- / 61.606
P-40	**Total Gross/Weapon System Cost**				**- / -**	**- / 48.772**	**- / 80.849**	**- / 61.606**	**- / 0.000**	**- / 61.606**

*Title represents 1) the Number / Title for Items; 2) the Number / Title [DODIC] for Ammunition; and/or 3) the Number / Title (Modification Type) for Modifications.

Note: Totals in this Exhibit P-40 set may not be exact or sum exactly due to rounding.

Justification:

FY2019 funding includes:

Funding for COMSATCOM Pathfinder 4 will be used to continue to address the goals of finding an effective and strategic method of acquiring COMSATCOM, incentivize Private-sector participation and investment, provide flexible (surge) capacity and enable cost accounting and control. Funding for Pathfinder 5 will be used to demonstrate the use of commercial high through put/capacity satellites (HTS/ HCS. This procurement will meet the objective of the showing an "order of magnitude improvement in COMSATCOM capability. Pathfinder #5 will need to develop, in conjunction with Pilot Phase #2 and Pilot Phase #3, the necessary interfaces for USG terminals to access the high throughput satellite capability (data packets - "bits). Pathfinder #5 will shift from only procuring bits to integrating and demonstrating an architecture that enables the terminals to achieve "order of magnitude improvements only available through the use of bits.

Continue support for Block II Follow-On (B2FO) satellite production, including Federally Funded Research and Development Center (FFRDC) technical analysis, mission assurance, test support (to include Camp Parks), technical support to include obsolescence/Diminishing Manufacturing Sources (DMS) studies, program office and other related support activities. Also funds the Command and Control System - Consolidated (CCS-C) mission unique software and databases for the WGS Block II Follow-On (B2FO) satellites. Continue program office support and other related support activities. Rapidly respond to implement system resiliency and situational awareness necessary to operate in the contested space domain. Activities may include, but are not limited to program office support, studies, technical analysis, prototyping, etc.

Exhibit P-5, Cost Analysis: PB 2019 Air Force		Date: February 2018
Appropriation / Budget Activity / Budget Sub Activity: 3021F / 01 / 1	**P-1 Line Item Number / Title:** GAP000 / Wideband Gapfiller Satellites(Space)	**Item Number / Title [DODIC]:** WGS B2FO
ID Code (A=Service Ready, B=Not Service Ready) : A		**MDAP/MAIS Code:**

Resource Summary	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	-	48.772	80.849	61.606	-	61.606
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	-	48.772	80.849	61.606	-	61.606
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**-**	**48.772**	**80.849**	**61.606**	**-**	**61.606**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)						
Initial Spares *($ in Millions)*	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Millions)*	-	-	-	-	-	-

Note: Subtotals or Totals in this Exhibit P-5 may not be exact or sum exactly due to rounding.

Cost Elements	Prior Years			FY 2017			FY 2018			FY 2019 Base			FY 2019 OCO			FY 2019 Total		
	Unit Cost *($ M)*	Qty *(Each)*	Total Cost *($ M)*	Unit Cost *($ M)*	Qty *(Each)*	Total Cost *($ M)*	Unit Cost *($ M)*	Qty *(Each)*	Total Cost *($ M)*	Unit Cost *($ M)*	Qty *(Each)*	Total Cost *($ M)*	Unit Cost *($ M)*	Qty *(Each)*	Total Cost *($ M)*	Unit Cost *($ M)*	Qty *(Each)*	Total Cost *($ M)*
Checkout and Launch - WGS Block II Follow-On Cost																		
WGS Block II Follow-On Checkout & Launch/ Launch Readiness	-	-	-	-	-	12.989	-	-	26.878	-	-	4.451	-	-	-	-	-	4.451
WGS Block II Follow-On Storage, Reactivation and Transport	-	-	-	-	-	17.556	-	-	-	-	-	-	-	-	-	-	-	-
Command & Control System - Consolidated (CCS-C) WGS Block II Follow-On support	-	-	-	-	-	-	-	-	0.208	-	-	-	-	-	-	-	-	-
Technical Mission Analysis	-	-	-	-	-	9.142	-	-	5.339	-	-	4.300	-	-	-	-	-	4.300
WGS Enterprise SE&I	-	-	-	-	-	1.872	-	-	0.881	-	-	0.419	-	-	-	-	-	0.419
Subtotal: Checkout and Launch - WGS Block II Follow-On Cost	**-**	**-**	**-**	**-**	**-**	***41.559***	**-**	**-**	***33.306***	**-**	**-**	***9.170***	**-**	**-**	**-**	**-**	**-**	***9.170***
Support - WGS Block II Follow-On Cost																		
WGS Block II Follow-on Test Support	-	-	-	-	-	0.273	-	-	0.104	-	-	0.100	-	-	-	-	-	0.100
WGS Block II Follow-on Lincoln Labs	-	-	-	-	-	1.035	-	-	0.833	-	-	0.700	-	-	-	-	-	0.700
Pathfinder COMSATCOM pooled bandwidth and demo	-	-	-	-	-	0.000	-	-	41.000	-	-	49.494	-	-	-	-	-	49.494
WGS Block II Follow-on A&AS	-	-	-	-	-	5.217	-	-	5.011	-	-	1.642	-	-	-	-	-	1.642

Exhibit P-5, Cost Analysis: PB 2019 Air Force		Date: February 2018
Appropriation / Budget Activity / Budget Sub Activity: 3021F / 01 / 1	P-1 Line Item Number / Title: GAP000 / Wideband Gapfiller Satellites(Space)	Item Number / Title [DODIC]: WGS B2FO
ID Code (A=Service Ready, B=Not Service Ready) : A	MDAP/MAIS Code:	

Note: Subtotals or Totals in this Exhibit P-5 may not be exact or sum exactly due to rounding.

Cost Elements	Prior Years			FY 2017			FY 2018			FY 2019 Base			FY 2019 OCO			FY 2019 Total		
	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)
FFRDC	-	-	-	-	-	0.688	-	-	0.595	-	-	0.500	-	-	-	-	-	0.500
Subtotal: Support - WGS Block II Follow-On Cost	**-**	**-**	**-**	**-**	**-**	***7.213***	**-**	**-**	***47.543***	**-**	**-**	***52.436***	**-**	**-**	**-**	**-**	**-**	***52.436***
Gross/Weapon System Cost	**-**	**-**	**-**	**-**	**-**	**48.772**	**-**	**-**	**80.849**	**-**	**-**	**61.606**	**-**	**-**	**-**	**-**	**-**	**61.606**

Remarks:

Total WGS Block II Follow-On (B2FO) 3020/3021 funds are $1,645.988M.

FY17: $30.0M transferred from SPAF to RDT&E for Pathfinder #3.

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Exhibit P-40, Budget Line Item Justification: PB 2019 Air Force	Date: February 2018
Appropriation / Budget Activity / Budget Sub Activity: 3021F: Space Procurement, Air Force / BA 01: Space Procurement, Air Force / BSA 1: Space Programs	**P-1 Line Item Number / Title:** GNRLIT / General Information Tech - Space

ID Code (A=Service Ready, B=Not Service Ready): A	Program Elements for Code B Items: N/A	Other Related Program Elements: 1203173F, 1203174F

Line Item MDAP/MAIS Code: N/A

Resource Summary	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	To Complete	Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	-	0.000	0.000	3.425	0.000	3.425	3.473	3.535	3.599	3.667	-	17.699
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	-	0.000	0.000	3.425	0.000	3.425	3.473	3.535	3.599	3.667	-	17.699
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**-**	**0.000**	**0.000**	**3.425**	**0.000**	**3.425**	**3.473**	**3.535**	**3.599**	**3.667**	**-**	**17.699**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Flyaway Unit Cost *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-

Description:

As of the FY2019 PB submission, these efforts have been recategorized from appropriation 3080, Other Procurement Air Force (OPAF) to appropriation 3021, Space Procurement Air Force (SPAF) in FY19 and beyond. Funding prior to FY2019 is described in the OPAF P-1, 834010, General Information Technology, Line # 26.

PE 1203173F R&D Space and Missile Operations
The Research and Development Space and Missile Operations (RDSMO) program, executed by the Advanced Systems and Development Directorate at Kirtland AFB, NM, conducts space and missile Research and Developmental Test and Evaluation (RDT&E) and Initial Operational Test and Evaluation (IOT&E) in support of experimental, demonstration, and operational satellites. The program develops, acquires, and operates satellite command and control (C2) and fixed/deployable telemetry, tracking, and commanding (TT&C) antenna systems in support of AF and DoD missions. The RDSMO program is responsible for the design, development, integration, testing, sustainment, and operations of the Multi-Mission Satellite Operations Center (MMSOC) C2 systems installed in the RDT&E Support Complex (RSC) at Kirtland AFB, NM and at the Satellite Operations Center 11 (SOC11) located at Schriever AFB, CO and future deployments of Enterprise Ground Services (EGS) in multiple locations. Funds in the General Information Technology (Space) line procures Information Technology products to support RDSMO.

PE 1203174F Space Innovation, Integration and Rapid Technology Development
Located at Peterson AFB, Colorado, the Space Innovation, Integration and Rapid Technology Development (SIIRTD) program supports the AFSPC Space Analysis Center Virtual Analysis Capability (AVAC) system. AVAC is a stand-alone system that provides a crosscutting capability to conduct, support, and report analysis on a myriad of tools, data, models and simulations. This system allows leadership to make decisions based on quantifiable operational impacts output from AVAC based on various vignettes and studies applied to space and cyber assets. Funding buys system-specific hardware, software, routers, licenses, etc., to maintain the efficiency and compatibility with all current models.

DISTRIBUTED COMMUNICATIONS ARCHITECTURE: Procures Information Technology (IT) hardware & software infrastructure for the Distributed Communications Architecture. This system provides a network-based communications capability enabling dispersed space personnel to participate in space exercises and wargames and to assist in development, testing, and validation of SIIRTD innovation projects supporting the Combat Air Forces. It can also support limited command and control capabilities for space operations.

SPACE ANALYSIS CENTER: Procures Information Technology (IT) hardware & software infrastructure for the Air Force Space Command Virtual Analysis Capability (AVAC) system. The system provides classified modeling and simulation tools for the AFSPC Space Analysis Center to conduct operations research, military utility analyses, tradeoff studies, and other evaluations of space mission areas to guide

Exhibit P-40, Budget Line Item Justification: PB 2019 Air Force		Date: February 2018
Appropriation / Budget Activity / Budget Sub Activity: 3021F: Space Procurement, Air Force / BA 01: Space Procurement, Air Force / BSA 1: Space Programs	P-1 Line Item Number / Title: GNRLIT / General Information Tech - Space	
ID Code (A=Service Ready, B=Not Service Ready): A	Program Elements for Code B Items: N/A	Other Related Program Elements: 1203173F, 1203174F
Line Item MDAP/MAIS Code: N/A		

planning, programming, requirements generation, analyses of alternatives, and other activities. Related modeling and simulation tool development is funded in RDT&E, AF, PE 1203174F, Space Innovation, Integration and Rapid Technology Development.

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."

Justification:
PE 1203173F RDSMO
FY2019 funds will be used to purchase hardware and software to support the implementation of the MMSOC C2 product in in support of EGS requirements.

PE 1203174F SIIRTD
FY2019 funding modifies modeling and simulation tools that Air Force Space Command's Space Analysis Center uses for operations research, military utility analyses, tradeoff studies, and other evaluations of space mission areas to guide planning, programming, requirements generation, analyses of alternatives, and other activities. This effort will incorporate changes in fielded and projected space operational capabilities, as well as technical improvements, into the group's software tools to ensure their data and technology remain current. Its innovation, education, and training activities foster solutions to operational deficiencies and enhance the integration of space systems into Air Force operations, thereby enabling service and joint warfighters to realized the full potential of existing and planned space capabilities.

Exhibit P-40, Budget Line Item Justification: PB 2019 Air Force	Date: February 2018
Appropriation / Budget Activity / Budget Sub Activity: 3021F: Space Procurement, Air Force / BA 01: Space Procurement, Air Force / BSA 1: Space Programs	**P-1 Line Item Number / Title:** GPSIII / GPS III Space Segment

ID Code (A=Service Ready, B=Not Service Ready): A	Program Elements for Code B Items: N/A	Other Related Program Elements: N/A
Line Item MDAP/MAIS Code: 292		

Resource Summary	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	To Complete	Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-	2	2	3	3	10	20
Gross/Weapon System Cost *($ in Millions)*	198.370	33.974	85.894	69.386	0.000	69.386	773.398	782.838	1,152.975	1,152.796	4,704.949	8,954.580
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	198.370	33.974	85.894	69.386	0.000	69.386	773.398	782.838	1,152.975	1,152.796	4,704.949	8,954.580
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**198.370**	**33.974**	**85.894**	**69.386**	**0.000**	**69.386**	**773.398**	**782.838**	**1,152.975**	**1,152.796**	**4,704.949**	**8,954.580**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Flyaway Unit Cost *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Millions)*	-	-	-	-	-	-	386.699	391.419	384.325	384.265	470.495	447.729

Description:

The Global Positioning System (GPS) is a space-based navigation system that fills validated Joint Service requirements for worldwide, accurate, common grid three-dimensional positioning/navigation for military aircraft, ships and ground personnel. The consistent accuracy, unaffected by location or weather and available in real time, significantly improves effectiveness of reconnaissance, weapons delivery, mine countermeasures and rapid deployment for all services. GPS must comply with Title 10 United States Code (USC) Sec. 2281, which requires that the Secretary of Defense ensures the continued sustainment and operation of GPS for military and civilian purposes, and 51 USC Sec. 50112, which requires that GPS complies with certain standards and facilitates international cooperation.

The system is composed of three segments: User Equipment (funded under Program Element (PE) 1203164F), Space (funded under PE 1203265F, 1203165F, and 1203269F), and a Control Network (funded under PE 1206423F and 1203165F). Research, Development, Test and Evaluation (RDT&E) funding for GPS III, including development and acquisition of Space Vehicles (SV) 01-02, is in PE 1203265F, Project 67A019, GPS III Space Segment. The satellites broadcast high- accuracy data using precisely synchronized signals which are received and processed by user equipment installed in military platforms. This equipment computes the platform position and velocity and provides steering vectors to target locations or navigation waypoints. The control segment provides daily updates to the navigation messages broadcast from the satellites to maintain system precision in three dimensions to 16 meters spherical error probable worldwide. Additionally, GPS supports the United States Nuclear Detonation (NUDET) Detection System (USNDS) mission and provides strategic and tactical support to the following Department of Defense (DoD) missions: Joint Operations by providing capabilities for Positioning, Navigation, and Timing (PNT); Command, Control, Communications, and Intelligence (C3I); Special Operations; Military Operations in Urban Terrain (MOUT); Defense-Wide Mission Support (DWMS); Air Mobility; and Space Launch Orbital Support.

GPS III is the next generation of SVs to join the GPS constellation. GPS III Follow-On production SVs will deliver significant enhancements, including a new civil (L1C) Galileo-compatible signal and enhanced anti-jam power. Regional Military Protection (RMP), which provides the ability to deliver high-power regional Military Code (M-Code) signals in specific areas of intended effect, a redesigned USNDS, and two auxiliary payloads (Search and Rescue/GPS (SAR/GPS) and Laser Retroreflector Array (LRA)) will be added no earlier than SV 11. The SAR/GPS payload provided by Canada will fill a validated National Search and Rescue Committee requirement to provide enduring, space-based distress alerting capability to detect, locate, and relay distress alerts to fulfill its responsibilities under international agreements for Search and Rescue. LRA, built by the Naval Research Lab (NRL), is a passive reflector that will improve accuracy and provide better ephemeris data. National Geospatial-Intelligence Agency (NGA) funds the integration costs of the LRA.

Upon Milestone C approval, the Air Force will procure SVs 13-32 via annual contract options exercised using Space Procurement, Air Force (SPAF) funds consistent with full-funding policy under an annual buy approach. Procurement funding for SVs 13-32 will be transferred to PE 1203269F, GPS III Follow-On, beginning in 2020.

Exhibit P-40, Budget Line Item Justification: PB 2019 Air Force		Date: February 2018
Appropriation / Budget Activity / Budget Sub Activity: 3021F: Space Procurement, Air Force / BA 01: Space Procurement, Air Force / BSA 1: Space Programs	**P-1 Line Item Number / Title:** GPSIII / GPS III Space Segment	
ID Code (A=Service Ready, B=Not Service Ready): A	**Program Elements for Code B Items:** N/A	**Other Related Program Elements:** N/A
Line Item MDAP/MAIS Code: 292		

The Air Force GPS directorate received USD(AT&L) approval to purchase GPS III SVs 09-10 at the December 2014 Defense Acquisition Board in order to sustain the constellation while competitive options are pursued. The GPS III SVs 09-10 purchase will be on the current Lockheed Martin contract as technical equivalents of SVs 01-08. SV 09 is funded with FY2014 Missile Procurement, Air Force (MPAF) advance procurement and FY2015 MPAF regular procurement. SV 10 is funded with FY2015 MPAF advance procurement and FY2016 SPAF regular procurement.

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."

Funding and quantities for GPS III SVs 03-10 was budgeted in PE 0305265F, Project GPSIII, GPS III Space Segment.

Exhibit P-40, Budget Line Item Justification: PB 2019 Air Force	Date: February 2018
Appropriation / Budget Activity / Budget Sub Activity: 3021F: Space Procurement, Air Force / BA 01: Space Procurement, Air Force / BSA 1: Space Programs	**P-1 Line Item Number / Title:** GPSIII / GPS III Space Segment
ID Code (A=Service Ready, B=Not Service Ready): A	**Program Elements for Code B Items:** N/A / **Other Related Program Elements:** N/A
Line Item MDAP/MAIS Code: 292	

Exhibits Schedule					Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/ MAIS Code	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*
P-5	GPS III Space Segment		A		- / 198.370	- / 33.974	- / 85.894	- / 69.386	- / 0.000	- / 69.386
P-40	**Total Gross/Weapon System Cost**				**- / 198.370**	**- / 33.974**	**- / 85.894**	**- / 69.386**	**- / 0.000**	**- / 69.386**

*Title represents 1) the Number / Title for Items; 2) the Number / Title [DODIC] for Ammunition; and/or 3) the Number / Title (Modification Type) for Modifications.

Note: Totals in this Exhibit P-40 set may not be exact or sum exactly due to rounding.

Justification:
FY2019 funding procures independent technical, systems engineering, and integration support critical to managing SV03-10 production milestones, mission assurance activities and launch preparation events.

Rapidly respond to implement system resiliency and situational awareness necessary to operate in the contested space domain. Activities may include, but are not limited to program office support, studies, technical analysis, prototyping, etc.

Refer to P5A in lieu of Item Schedule for unit cost based on actual contract award or forecast contract cost.

Exhibit P-5, Cost Analysis: PB 2019 Air Force		Date: February 2018
Appropriation / Budget Activity / Budget Sub Activity: 3021F / 01 / 1	**P-1 Line Item Number / Title:** GPSIII / GPS III Space Segment	**Item Number / Title [DODIC]:** GPS III Space Segment
ID Code (A=Service Ready, B=Not Service Ready) : A	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	198.370	33.974	85.894	69.386	0.000	69.386
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	198.370	33.974	85.894	69.386	0.000	69.386
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**198.370**	**33.974**	**85.894**	**69.386**	**0.000**	**69.386**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)						
Initial Spares *($ in Millions)*	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Millions)*	-	-	-	-	-	-

Note: Subtotals or Totals in this Exhibit P-5 may not be exact or sum exactly due to rounding.

Cost Elements	Prior Years			FY 2017			FY 2018			FY 2019 Base			FY 2019 OCO			FY 2019 Total		
	Unit Cost *($ M)*	Qty *(Each)*	Total Cost *($ M)*	Unit Cost *($ M)*	Qty *(Each)*	Total Cost *($ M)*	Unit Cost *($ M)*	Qty *(Each)*	Total Cost *($ M)*	Unit Cost *($ M)*	Qty *(Each)*	Total Cost *($ M)*	Unit Cost *($ M)*	Qty *(Each)*	Total Cost *($ M)*	Unit Cost *($ M)*	Qty *(Each)*	Total Cost *($ M)*
Hardware - GPS III Cost																		
Recurring Cost																		
GPS III SV 13+ SAR	-	-	3.308	-	-	3.330	-	-	3.392	-	-	3.427	-	-	0.000	-	-	3.427
Subtotal: Recurring Cost	-	-	*3.308*	-	-	*3.330*	-	-	*3.392*	-	-	*3.427*	-	-	*0.000*	-	-	*3.427*
Subtotal: Hardware - GPS III Cost	**-**	**-**	***3.308***	**-**	**-**	***3.330***	**-**	**-**	***3.392***	**-**	**-**	***3.427***	**-**	**-**	***0.000***	**-**	**-**	***3.427***
Space Vehicle - Space Vehicle End Item Cost																		
Recurring Cost																		
GPS III SV 03-10	-	-	168.239	-	-	5.644	-	-	7.053	-	-	9.219	-	-	-	-	-	9.219
GPS III SV11+	-	-	0.000	-	-	1.067	-	-	2.000	-	-	0.000	-	-	-	-	-	0.000
GPS III SV 03-10 Enterprise SE&I	-	-	0.000	-	-	0.102	-	-	0.124	-	-	0.128	-	-	-	-	-	0.128
GPS III SV 03-10 Technical Mission Analysis	-	-	13.678	-	-	9.325	-	-	7.365	-	-	11.366	-	-	-	-	-	11.366
GPS III SV 11+ Technical Mission Analysis	-	-	0.000	-	-	0.000	-	-	15.656	-	-	0.000	-	-	-	-	-	0.000
GPS III SV 03-10 Less Advanced Procurement	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	-	-	-	0.000
GPS III SV 03-10 Plus Advanced Procurement	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	-	-	-	0.000
Subtotal: Recurring Cost	-	-	*181.917*	-	-	*16.138*	-	-	*32.198*	-	-	*20.713*	-	-	-	-	-	*20.713*

Exhibit P-5, Cost Analysis: PB 2019 Air Force		Date: February 2018
Appropriation / Budget Activity / Budget Sub Activity: 3021F / 01 / 1	P-1 Line Item Number / Title: GPSIII / GPS III Space Segment	Item Number / Title [DODIC]: GPS III Space Segment
ID Code (A=Service Ready, B=Not Service Ready) : A	MDAP/MAIS Code:	

Note: Subtotals or Totals in this Exhibit P-5 may not be exact or sum exactly due to rounding.

Cost Elements	Prior Years			FY 2017			FY 2018			FY 2019 Base			FY 2019 OCO			FY 2019 Total		
	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)
Subtotal: Space Vehicle - Space Vehicle End Item Cost	**-**	**-**	***181.917***	**-**	**-**	***16.138***	**-**	**-**	***32.198***	**-**	**-**	***20.713***	**-**	**-**	**-**	**-**	**-**	***20.713***
Checkout and Launch - Checkout And Launch End Item Cost																		
GPS III SV 03-10 Launch Services	-	-	1.900	-	-	5.200	-	-	13.369	-	-	24.232	-	-	-	-	-	24.232
GPS III SV 03-10 On-Orbit Incentive	-	-	0.000	-	-	0.000	-	-	0.000	-	-	1.500	-	-	-	-	-	1.500
GPS III SV 03-10 Storage and MRT	-	-	0.000	-	-	1.200	-	-	3.700	-	-	6.998	-	-	-	-	-	6.998
Subtotal: Checkout and Launch - Checkout And Launch End Item Cost	**-**	**-**	***1.900***	**-**	**-**	***6.400***	**-**	**-**	***17.069***	**-**	**-**	***32.730***	**-**	**-**	**-**	**-**	**-**	***32.730***
Support - Support End Item Cost																		
GPS III SV 03-10 FFRDC	-	-	7.185	-	-	5.436	-	-	5.076	-	-	9.018	-	-	-	-	-	9.018
GPS III SV 03-10 A&AS	-	-	2.410	-	-	2.270	-	-	11.149	-	-	3.298	-	-	-	-	-	3.298
GPS III SV 03-10 Other Support	-	-	1.650	-	-	0.000	-	-	2.198	-	-	0.200	-	-	-	-	-	0.200
GPS III SV 03-10 Launch/ On-Orbit Support (LOOS)	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	-	-	-	0.000
GPS III SV 11+ FFRDC	-	-	0.000	-	-	0.400	-	-	8.552	-	-	0.000	-	-	-	-	-	0.000
GPS III SV 11+ A&AS	-	-	0.000	-	-	0.000	-	-	5.011	-	-	0.000	-	-	-	-	-	0.000
GPS III SV 11+ Other Support	-	-	-	-	-	-	-	-	1.249	-	-	-	-	-	-	-	-	-
Subtotal: Support - Support End Item Cost	**-**	**-**	***11.245***	**-**	**-**	***8.106***	**-**	**-**	***33.235***	**-**	**-**	***12.516***	**-**	**-**	**-**	**-**	**-**	***12.516***
Gross/Weapon System Cost	**-**	**-**	**198.370**	**-**	**-**	**33.974**	**-**	**-**	**85.894**	**-**	**-**	**69.386**	**-**	**-**	**0.000**	**-**	**-**	**69.386**

Remarks:
P5a and P21 information is populated in IDECS but are not exported due to zero procurement quantity in FY2019.

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Exhibit P-40, Budget Line Item Justification: PB 2019 Air Force	Date: February 2018
Appropriation / Budget Activity / Budget Sub Activity: 3021F: Space Procurement, Air Force / BA 01: Space Procurement, Air Force / BSA 1: Space Programs	**P-1 Line Item Number / Title:** GPSSPC / Global Postioning (Space)

ID Code (A=Service Ready, B=Not Service Ready): A	Program Elements for Code B Items: N/A	Other Related Program Elements: 1203164F

Line Item MDAP/MAIS Code: N/A

Resource Summary	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	To Complete	Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	-	2.082	2.198	2.181	0.000	2.181	2.221	2.259	2.305	2.349	-	15.595
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	-	2.082	2.198	2.181	0.000	2.181	2.221	2.259	2.305	2.349	-	15.595
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**-**	**2.082**	**2.198**	**2.181**	**0.000**	**2.181**	**2.221**	**2.259**	**2.305**	**2.349**	**-**	**15.595**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Flyaway Unit Cost *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-

Description:

The Navstar Global Positioning System (GPS) provides highly accurate time, three-dimensional position, and velocity information to an unlimited number of users anywhere on or above the surface of the earth, in any weather. GPS satisfies validated Joint Service requirements for worldwide, accurate, common grid navigation for military aircraft, ships, ground vehicles and personnel. The system is comprised of three segments: (1) satellites, (2) a ground control, and (3) user equipment. The satellites broadcast high-accuracy data using precisely synchronized signals that are received and processed by user equipment installed in military platforms. The ground control network updates the navigation messages broadcast from the satellites to provide system vectors to target location or navigational way points. Funds in this line support various GPS specific production efforts associated with the ground control and user equipment segments.

KEY DATA LOADING INSTALLATION FACILITY (KLIF)/GPS SECURITY DEVICE: The KLIF facilitates the programming of black key (cryptographic) algorithms into the Selective Availability Anti-Spoofing Module (SAASM) to provide accurate positioning solutions for GPS users using secure equipment.

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."

Funding for this exhibit contained in Program Element 1203164F NAVSTAR GPS (User Equipment)(Space).

Justification:

PE 1203164F NAVSTAR GPS (USER EQUIPMENT) (SPACE)

KEY DATA LOADING INSTALLATION FACILITY (KLIF)/GPS SECURITY DEVICE: FY2019 funding provides for the programming of black key (cryptographic) algorithms into the SAASM, providing an accurate positioning solution for GPS users using secure equipment. Funding will procure support for Key Data Processors (KDP), ensuring uninterrupted support to SAASM vendors. SAASM vendors are required to use government-provided KDP as part of the security architecture of GPS User Equipment.

Exhibit P-40, Budget Line Item Justification: PB 2019 Air Force		Date: February 2018
Appropriation / Budget Activity / Budget Sub Activity: 3021F: Space Procurement, Air Force / BA 01: Space Procurement, Air Force / BSA 1: Space Programs	**P-1 Line Item Number / Title:** GPSSPC / Global Postioning (Space)	
ID Code (A=Service Ready, B=Not Service Ready): A	**Program Elements for Code B Items:** N/A	**Other Related Program Elements:** 1203164F
Line Item MDAP/MAIS Code: N/A		

Rapidly respond to implement system resiliency and situational awareness necessary to operate in the contested space domain. Activities may include, but are not limited to program office support, studies, technical analysis, prototyping, etc.

Exhibit P-40, Budget Line Item Justification: PB 2019 Air Force	Date: February 2018
Appropriation / Budget Activity / Budget Sub Activity: 3021F: Space Procurement, Air Force / BA 01: Space Procurement, Air Force / BSA 1: Space Programs	**P-1 Line Item Number / Title:** IBS000 / INTEG BROADCAST SERV

ID Code (A=Service Ready, B=Not Service Ready): A	Program Elements for Code B Items: N/A	Other Related Program Elements: 0305220F

Line Item MDAP/MAIS Code: N/A

Resource Summary	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	To Complete	Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	-	0.000	0.000	16.445	0.000	16.445	16.743	17.134	17.341	17.667	-	85.330
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	-	0.000	0.000	16.445	0.000	16.445	16.743	17.134	17.341	17.667	-	85.330
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**-**	**0.000**	**0.000**	**16.445**	**0.000**	**16.445**	**16.743**	**17.134**	**17.341**	**17.667**	**-**	**85.330**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Flyaway Unit Cost *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-

Description:

PE 1203179F Integrated Broadcast Service
The IBS is a multi-sensor, multi-source, system of systems for the dissemination of integrated threat warning blue force tracking information. IBS provides intelligence producers and information sources the means to analyze and disseminate strategic, operational, and tactical intelligence and threat warning information directly to the warfighter. The IBS operational baseline represents the migration, integration, and consolidation of existing tactical data dissemination into a future common architecture message format.

Integrated Broadcast Service Procurement was previously funded in PE 0305179F in FY17 and FY18 Other Procurement/ BA 03: Electronics and Telecommunications Equip/BSA 2: Intelligence Programs P-1 Line #14; 832070 Intelligence Comm Equipment BP83.

Exhibit P-40, Budget Line Item Justification: PB 2019 Air Force	Date: February 2018
Appropriation / Budget Activity / Budget Sub Activity: 3021F: Space Procurement, Air Force / BA 01: Space Procurement, Air Force / BSA 1: Space Programs	**P-1 Line Item Number / Title:** IBS000 / INTEG BROADCAST SERV
ID Code (A=Service Ready, B=Not Service Ready): A	**Program Elements for Code B Items:** N/A — **Other Related Program Elements:** 0305220F
Line Item MDAP/MAIS Code: N/A	

Exhibits Schedule					Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/ MAIS Code	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*
P-40a	INTEG BROADCAST SERV				- / -	- / 0.000	- / 0.000	- / 16.445	- / 0.000	- / 16.445
P-40	**Total Gross/Weapon System Cost**				**- / -**	**- / 0.000**	**- / 0.000**	**- / 16.445**	**- / 0.000**	**- / 16.445**

*Title represents 1) the Number / Title for Items; 2) the Number / Title [DODIC] for Ammunition; and/or 3) the Number / Title (Modification Type) for Modifications. Title represents the P-40a Title when only the P-40a Summary/Total is shown.

Note: Totals in this Exhibit P-40 set may not be exact or sum exactly due to rounding.

Justification:
PE 1203179F Integrated Broadcast Service (IBS) - P40A
FY19 funding for IBS procurement efforts are focused in the following areas:

1. CIB UPLINK SITE (CUS) TACTICAL INFORMATION PROCESSOR AND ONLINE FUSION FACILITY (TIPOFF): TIPOFF serves as the control system for the CIB Uplink Site and interface to the IBS Network Services (IBS-NS). Each major release of the software incorporates approved requirements as necessitated by mission changes, system interoperability requirements, and system security. The new release supports migration to CIB Uplink Sites.

2. COMMON INTERACTIVE BROADCAST PLANNING TOOL (CIB-PT): The CIB-PT provides the COCOM Planners an integrated software/hardware mechanism to allocate space-based communications resources to theater and national producers, specifically to reliably optimize the timeliness of scarce bandwidth allocation of extremely time-critical messages. Each major release of the software/hardware incorporates updated producer prioritization, bandwidth allocation, mission monitoring and interfaces to the STRATCOM systems as necessitated by mission changes, system interoperability, and system security compliance to achieve threshold requirements.

3. COMMON MESSAGE FORMATE PARSER LIBRARY (CMFPL): The CMF repository is required for the automatic exchange of data among processing, exploitation, and dissemination (PED) systems. This effort procures the infrastructure for dynamic software library updates for multiple operating systems essential to broadcast operation.

4. IBS V&V Environment: Procures simulation and stimulation tools to certify and verify mission equipment for operational use. Included is the MULTI-AREA REMOTE SIMULATOR (MARS) a component of the IBS verification and validation process used to emulate multiple systems messaging under operational conditions and the UNIVERSAL CIB TEST SET (UCTS) a component that emulates the UHF SATCOM environment.

5. TERMINAL, DATALINK, & ENTERPRISE SERVER MITIGATION: Funds direct mission support activities such as verification & validation documentation; uplink receive and transmit terminal upgrade, enhancements and spares; mitigation; CMF product support; JOINT TACTICAL DATA LINK, i.e., Link 16 support; product documentation; studies and analyses; IBS Web Support and contractor system engineering activities.

6. IBS-NS: Scaling capability is required for messaging under operational use. Funds approved modernization of Global IBS Network Servers (GINS) and Theater Interface Nodes (TINS), technology refreshment and integration as necessitated by mission changes, system interoperability, and system security.

Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2019 Air Force		Date: February 2018
Appropriation / Budget Activity / Budget Sub Activity: 3021F / 01 / 1	**P-1 Line Item Number / Title:** IBS000 / INTEG BROADCAST SERV	**Aggregated Items Title:** INTEG BROADCAST SERV

Item Number / Title [DODIC]	ID CD	MDAP/ MAIS Code	Prior Years			FY 2017			FY 2018			FY 2019 Base			FY 2019 OCO			FY 2019 Total		
			Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)
IBS Capability Improvement																				
Common Integrated Broadcast Uplink Sites	A		-	-	-	-	-	0.000	-	-	0.000	-	-	3.725	-	-	0.000	-	-	3.725
Common Message Format Parser	A		-	-	-	-	-	-	-	-	-	-	-	1.325	-	-	-	-	-	1.325
Terminal Datalink & Enterprise Mitigation/ Resiliency	A		-	-	-	-	-	-	-	-	-	-	-	2.400	-	-	-	-	-	2.400
Integrated Broadcast Service-Network Service Equipment Replacement	A		-	-	-	-	-	-	-	-	-	-	-	3.925	-	-	-	-	-	3.925
Common Interactive Broadcast Planning Tool	A		-	-	-	-	-	-	-	-	-	-	-	3.200	-	-	-	-	-	3.200
Verification and Validation Environment	A		-	-	-	-	-	-	-	-	-	-	-	1.870	-	-	-	-	-	1.870
Subtotal: IBS Capability Improvement			**-**	**-**	**-**	**-**	**-**	***0.000***	**-**	**-**	***0.000***	**-**	**-**	***16.445***	**-**	**-**	***0.000***	**-**	**-**	***16.445***
Total			**-**	**-**	**-**	**-**	**-**	**0.000**	**-**	**-**	**0.000**	**-**	**-**	**16.445**	**-**	**-**	**0.000**	**-**	**-**	**16.445**

Note: Subtotals or Totals in this Exhibit P-40a may not be exact or sum exactly, due to rounding.

Remarks:
Integrated Broadcast Service Procurement was previously funded in PE 0305179F in FY17 and FY18 Other Procurement/ BA 03: Electronics and Telecommunications Equip/BSA 2: Intelligence Programs P-1 Line #14; 832070 Intelligence Comm Equipment BP83.

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Exhibit P-40, Budget Line Item Justification: PB 2019 Air Force	Date: February 2018
Appropriation / Budget Activity / Budget Sub Activity: 3021F: Space Procurement, Air Force / BA 01: Space Procurement, Air Force / BSA 1: Space Programs	**P-1 Line Item Number / Title:** MC0MSE / Spaceborne Equip (Comsec)

ID Code (A=Service Ready, B=Not Service Ready): A	Program Elements for Code B Items: N/A	Other Related Program Elements: N/A

Line Item MDAP/MAIS Code: N/A

Resource Summary	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	To Complete	Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	-	31.708	25.048	31.895	-	31.895	34.100	34.693	26.359	26.854	-	210.657
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	-	31.708	25.048	31.895	-	31.895	34.100	34.693	26.359	26.854	-	210.657
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**-**	**31.708**	**25.048**	**31.895**	**-**	**31.895**	**34.100**	**34.693**	**26.359**	**26.854**	**-**	**210.657**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Flyaway Unit Cost *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-

Description:

Space Communications Security (COMSEC) procures cryptographic products to operate in the space environment and for ground nodes that link to space assets. Space COMSEC equipment is a foundational element in achieving AF space and information superiority. Space COMSEC provides cybersecurity (authentication and confidentiality) for DOD satellite platforms. Space COMSEC is an enabler for space system compliance with DoDI 8581.01 - Information Assurance (IA) Policy for Space Systems Used by the Department of Defense. Space COMSEC mission provides communications security products and lifecycle sustainment support to all DoD satellite systems and commercial systems supporting DOD missions. Secure communication allows the DoD to achieve and maintain decision superiority, the key to successful application of the military instrument of national power in modern, high-tempo, full spectrum operations. Space COMSEC equipment protects information such as warfighter positions, mission planning, target strikes, commanders' orders, intelligence, force strength, and force readiness and ensures adversaries cannot interpret, manipulate, or destroy information. When an adversary is capable of interpretation, manipulation, or destruction of the information used by the warfighter, DoD military forces will suffer significant and/or devastating mission degradation that can result in loss of life and resources and/or exceptionally grave damage to national security. Space COMSEC enables secure command and Control (C2) of satellites and prevents unauthorized access and destruction. It enables secure transmission of satellite systems' health and status telemetry data (satellite health and relative orbital position) to ground control stations, thus protecting critical information about the capabilities of DoD satellite systems. The capability of a system must be protected from an adversary to avoid exploitation of a system weakness/limitation, knowledge of which could assist an adversary in a successful mission against DoD military forces. Space COMSEC also provides secure transmission of information collected by satellite sensors (mission data), which provides the warfighter an integrated view of the battle space. Space COMSEC provides for secure SATCOM, positioning, navigation, timing, weather, nuclear detection and early warning missions. Space COMSEC also enables Transmission Security (TRANSEC) for space platforms. Space COMSEC mission procures crypto end items and logistics elements to support developing and operational space systems.

Funding for this effort is in program element (PE) 1203140F.

Exhibit P-40, Budget Line Item Justification: PB 2019 Air Force	Date: February 2018
Appropriation / Budget Activity / Budget Sub Activity: 3021F: Space Procurement, Air Force / BA 01: Space Procurement, Air Force / BSA 1: Space Programs	**P-1 Line Item Number / Title:** MC0MSE / Spaceborne Equip (Comsec)

ID Code (A=Service Ready, B=Not Service Ready): A	Program Elements for Code B Items: N/A	Other Related Program Elements: N/A

Line Item MDAP/MAIS Code: N/A

Exhibits Schedule					Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/ MAIS Code	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*
P-5	Spaceborne Equip (Comsec)		A		- / -	- / 31.708	- / 25.048	- / 31.895	- / -	- / 31.895
P-40	**Total Gross/Weapon System Cost**				**- / -**	**- / 31.708**	**- / 25.048**	**- / 31.895**	**- / -**	**- / 31.895**

*Title represents 1) the Number / Title for Items; 2) the Number / Title [DODIC] for Ammunition; and/or 3) the Number / Title (Modification Type) for Modifications.

Note: Totals in this Exhibit P-40 set may not be exact or sum exactly due to rounding.

Justification:

a. Products: FY19 funding provides for the production of Space COMSEC products to meet developing and operational space program needs. Space COMSEC products include End Crypto Units (ECU), Embedded Solutions (ES), TRANSEC and ancillaries. Due to low volume production quantities and high reliability design, Space COMSEC products can range in price from $10K per unit to $2M per unit. As a commodity item, Space COMSEC procures standard crypto products which enable minimized lifecycle footprints. Space COMSEC procures from multiple crypto vendors; however, with the low volume consumption by space programs, the space crypto industry base is less than a dozen companies. Items procured during execution may change based on critical equipment needed to support current Air Force mission requirements. Contractor support costs are included as part of the Space COMSEC products funding line in order to provide for end item operational capability.

b. Logistics: FY19 funding provides for the production of Space COMSEC Logistics elements. Space COMSEC products typically have a 20 to 40 year lifecycle to support development, launch and operation of multiple Air Force and DoD space systems. Space COMSEC is provided as Government Furnished Equipment (GFE) to the space system developing contractors and operational ground stations. Space COMSEC products are high cost critical assets and are organically sustained to include component level maintenance exclusively by the Air Force. Logistics procures the necessary lifecycle sustainment elements required to meet the 40 year mission requirements. Logistics elements include, but not limited to, specialized test sets, certified training materials and courses, maintenance manuals, provisioning, spare components, and modifications. Contractor support costs are included as part of the Space COMSEC logistics funding line in order to provide for end item operational capability.

Exhibit P-5, Cost Analysis: PB 2019 Air Force		Date: February 2018
Appropriation / Budget Activity / Budget Sub Activity: 3021F / 01 / 1	**P-1 Line Item Number / Title:** MC0MSE / Spaceborne Equip (Comsec)	**Item Number / Title [DODIC]:** Spaceborne Equip (Comsec)
ID Code (A=Service Ready, B=Not Service Ready) : A		**MDAP/MAIS Code:**

Resource Summary	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	-	31.708	25.048	31.895	-	31.895
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	-	31.708	25.048	31.895	-	31.895
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**-**	**31.708**	**25.048**	**31.895**	**-**	**31.895**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)						
Initial Spares *($ in Millions)*	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Millions)*	-	-	-	-	-	-

Note: Subtotals or Totals in this Exhibit P-5 may not be exact or sum exactly due to rounding.

Cost Elements	Prior Years			FY 2017			FY 2018			FY 2019 Base			FY 2019 OCO			FY 2019 Total		
	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)
Hardware - 1203140F MC0MSE Spaceborne Equip (COMSEC) Cost																		
Recurring Cost																		
a. Products	-	-	-	0.020	1,475	29.509	0.031	676	20.972	0.018	1,440	26.401	-	-	-	0.018	1,440	26.401
b. Logistics	-	-	-	2.199	1	2.199	0.679	6	4.076	0.916	6	5.494	-	-	-	0.916	6	5.494
Subtotal: Recurring Cost	-	-	-	-	-	*31.708*	-	-	*25.048*	-	-	*31.895*	-	-	-	-	-	*31.895*
Subtotal: Hardware - 1203140F MC0MSE Spaceborne Equip (COMSEC) Cost	**-**	**-**	**-**	**-**	**-**	***31.708***	**-**	**-**	***25.048***	**-**	**-**	***31.895***	**-**	**-**	**-**	**-**	**-**	***31.895***
Gross/Weapon System Cost	**-**	**-**	**-**	**-**	**-**	**31.708**	**-**	**-**	**25.048**	**-**	**-**	**31.895**	**-**	**-**	**-**	**-**	**-**	**31.895**

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Exhibit P-40, Budget Line Item Justification: PB 2019 Air Force	Date: February 2018
Appropriation / Budget Activity / Budget Sub Activity: 3021F: Space Procurement, Air Force / BA 01: Space Procurement, Air Force / BSA 1: Space Programs	**P-1 Line Item Number / Title:** MGPS00 / Global Positioning (Space)

ID Code (A=Service Ready, B=Not Service Ready): A	Program Elements for Code B Items: N/A	Other Related Program Elements: N/A
Line Item MDAP/MAIS Code: 166		

Resource Summary	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	To Complete	Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	-	9.838	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-	9.838
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	-	9.838	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-	9.838
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**-**	**9.838**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**-**	**9.838**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Flyaway Unit Cost *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-

Description:

The Navstar Global Positioning System (GPS) fills validated Joint Service requirements for worldwide, accurate, common grid three-dimensional positioning/navigation for military aircraft, ships, and ground personnel. The consistent accuracy, unaffected by location or weather and available in real time, significantly improves effectiveness of reconnaissance, weapons delivery, mine countermeasures and rapid deployment for all services. The system is composed of three segments: user equipment (funded under Program Element (PE) 1203164F), satellites and a control network. The satellites broadcast high-accuracy data using precisely synchronized signals which are received and processed by user equipment installed in military platforms. This equipment computes the platform position and velocity and provides steering vectors to target locations or navigation way points. The control segment provides daily updates to the navigation messages broadcasted from the satellites to maintain system precision.

The GPS IIF program will continue On-Orbit Support on the Launch and On-Orbit Support (LOOS) firm fixed price services contract with a period of performance from 1 Jan 2013 to 31 Mar 2017. The LOOS contract will end on 31 Mar 2017 and IIF will transition to sustainment. The contract services includes: launch readiness activities, launch and on-orbit checkout of up to twelve GPS IIF Space Vehicles (SVs), storing, maintaining, and transportation of up to twelve GPS IIF SVs, on-orbit operations for up to twelve GPS IIF SVs, quick reaction support, anomaly resolution, anomaly investigation, and contract closeout. The GPS IIF program will finish contract closeout activities in the 2nd quarter of FY2017.

GPS IIF is the follow-on program to IIR-M (last launch Aug 2009) and was awarded in 1995 to Rockwell International (now Boeing, El Segundo, California). The contract was modified in 2002 for the modernization of all IIF SVs. Of the 12 satellite vehicles contracted for, 12 have been launched and are successfully on orbit (the 12th was launched in February 2016).

Block IIF was launched on the Evolved Expendable Launch Vehicle (EELV). Launch schedules are established based on constellation sustainment needs and launch manifest constraints. The system hosts the Nuclear Detonation (NUDET) Detection System (NDS) funded under PE 1203913F.

The acquisition strategy for the Block IIF satellites was a competitive multi-year contract for 6 satellites awarded in FY1996. Options for 6 additional Space Vehicles (SVs) were exercised in FY2004 and FY2005 (3 each year). Block IIF satellites have been modernized to include a new military signal and a second and third civil signal.

Funding for this exhibit is contained in PE 1203165F, NAVSTAR Global Positioning System (Space and Control Segments)

Exhibit P-40, Budget Line Item Justification: PB 2019 Air Force	Date: February 2018
Appropriation / Budget Activity / Budget Sub Activity: 3021F: Space Procurement, Air Force / BA 01: Space Procurement, Air Force / BSA 1: Space Programs	**P-1 Line Item Number / Title:** MGPS00 / Global Positioning (Space)

ID Code (A=Service Ready, B=Not Service Ready): A	Program Elements for Code B Items: N/A	Other Related Program Elements: N/A

Line Item MDAP/MAIS Code: 166

Exhibits Schedule					Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/ MAIS Code	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*
P-5	Global Positioning (Space)		A		- / -	- / 9.838	- / 0.000	- / 0.000	- / 0.000	- / 0.000
P-40	**Total Gross/Weapon System Cost**				**- / -**	**- / 9.838**	**- / 0.000**	**- / 0.000**	**- / 0.000**	**- / 0.000**

*Title represents 1) the Number / Title for Items; 2) the Number / Title [DODIC] for Ammunition; and/or 3) the Number / Title (Modification Type) for Modifications.

Note: Totals in this Exhibit P-40 set may not be exact or sum exactly due to rounding.

Justification:
No FY2019 funding is requested. This program completes with FY2017 funding.

Exhibit P-5, Cost Analysis: PB 2019 Air Force		Date: February 2018
Appropriation / Budget Activity / Budget Sub Activity: 3021F / 01 / 1	**P-1 Line Item Number / Title:** MGPS00 / Global Positioning (Space)	**Item Number / Title [DODIC]:** Global Positioning (Space)
ID Code (A=Service Ready, B=Not Service Ready) : A	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	-	9.838	0.000	0.000	0.000	0.000
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	-	9.838	0.000	0.000	0.000	0.000
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**-**	**9.838**	**0.000**	**0.000**	**0.000**	**0.000**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)						
Initial Spares *($ in Millions)*	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Millions)*	-	-	-	-	-	-

Note: Subtotals or Totals in this Exhibit P-5 may not be exact or sum exactly due to rounding.

Cost Elements	Prior Years			FY 2017			FY 2018			FY 2019 Base			FY 2019 OCO			FY 2019 Total		
	Unit Cost *($ M)*	Qty *(Each)*	Total Cost *($ M)*	Unit Cost *($ M)*	Qty *(Each)*	Total Cost *($ M)*	Unit Cost *($ M)*	Qty *(Each)*	Total Cost *($ M)*	Unit Cost *($ M)*	Qty *(Each)*	Total Cost *($ M)*	Unit Cost *($ M)*	Qty *(Each)*	Total Cost *($ M)*	Unit Cost *($ M)*	Qty *(Each)*	Total Cost *($ M)*
Checkout and Launch - GPS Cost																		
GPS IIF Enterprise SE&I	-	-	-	-	-	1.136	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Checkout and Launch - GPS Cost	**-**	**-**	**-**	**-**	**-**	***1.136***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Support - On Orbit Support End Item Cost																		
GPS IIF On-Orbit Space Vehicle Support	-	-	-	-	-	2.000	-	-	0.000	-	-	0.000	-	-	-	-	-	0.000
GPS IIF Closeout	-	-	-	-	-	3.310	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Support - On Orbit Support End Item Cost	**-**	**-**	**-**	**-**	**-**	***5.310***	**-**	**-**	***0.000***	**-**	**-**	***0.000***	**-**	**-**	**-**	**-**	**-**	***0.000***
Support - Support Costs End Item Cost																		
GPS IIF FFRDC	-	-	-	-	-	1.346	-	-	-	-	-	-	-	-	-	-	-	-
GPS IIF A&AS	-	-	-	-	-	2.026	-	-	-	-	-	-	-	-	-	-	-	-
GPS IIF Other Support	-	-	-	-	-	0.020	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Support - Support Costs End Item Cost	**-**	**-**	**-**	**-**	**-**	***3.392***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Gross/Weapon System Cost	**-**	**-**	**-**	**-**	**-**	**9.838**	**-**	**-**	**0.000**	**-**	**-**	**0.000**	**-**	**-**	**0.000**	**-**	**-**	**0.000**

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Exhibit P-40, Budget Line Item Justification: PB 2019 Air Force	Date: February 2018
Appropriation / Budget Activity / Budget Sub Activity: 3021F: Space Procurement, Air Force / BA 01: Space Procurement, Air Force / BSA 1: Space Programs	**P-1 Line Item Number / Title:** MILSAT / MILSATCOM

ID Code (A=Service Ready, B=Not Service Ready): A	Program Elements for Code B Items: N/A	Other Related Program Elements: N/A
Line Item MDAP/MAIS Code: 199		

Resource Summary	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	To Complete	Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	-	41.773	35.289	11.265	0.000	11.265	11.096	11.290	11.520	11.736	172.204	306.173
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	-	41.773	35.289	11.265	0.000	11.265	11.096	11.290	11.520	11.736	172.204	306.173
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**-**	**41.773**	**35.289**	**11.265**	**0.000**	**11.265**	**11.096**	**11.290**	**11.520**	**11.736**	**172.204**	**306.173**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Flyaway Unit Cost *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-

Description:

PE 1203601F MILSATCOM TERMINALS

MILITARY SATELLITE COMMUNICATIONS (MILSATCOM) joint-service systems collectively provide a broad range of satellite communication capabilities, including secure, jam-resistant, 24-hour worldwide communications to meet essential strategic, tactical and general-purpose operational requirements. MILSATCOM terminals support communications requirements for the President and Secretary of Defense, unified and specified commanders, uniformed services and defense agencies. Procurement funding is in program element (PE) 1203601F, MILSATCOM Terminals, except where otherwise noted.

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."

The FY 2019 funding request was reduced by $2.383 million to account for the availability of prior year execution balances.

Exhibit P-40, Budget Line Item Justification: PB 2019 Air Force	Date: February 2018
Appropriation / Budget Activity / Budget Sub Activity: 3021F: Space Procurement, Air Force / BA 01: Space Procurement, Air Force / BSA 1: Space Programs	**P-1 Line Item Number / Title:** MILSAT / MILSATCOM

ID Code (A=Service Ready, B=Not Service Ready): A	Program Elements for Code B Items: N/A	Other Related Program Elements: N/A

Line Item MDAP/MAIS Code: 199

Exhibits Schedule					Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/ MAIS Code	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*
P-5	AFWET		A		- / -	- / 33.458	- / 28.833	- / 10.986	- / -	- / 10.986
P-5	GBS		A		- / -	- / 8.043	- / 6.179	- / 0.279	- / -	- / 0.279
P-40a	Satellite Communications (SATCOM) O&M				- / -	- / 0.272	- / 0.277	- / -	- / -	- / -
P-40	**Total Gross/Weapon System Cost**				**- / -**	**- / 41.773**	**- / 35.289**	**- / 11.265**	**- / 0.000**	**- / 11.265**

*Title represents 1) the Number / Title for Items; 2) the Number / Title [DODIC] for Ammunition; and/or 3) the Number / Title (Modification Type) for Modifications. Title represents the P-40a Title when only the P-40a Summary/Total is shown.

Note: Totals in this Exhibit P-40 set may not be exact or sum exactly due to rounding.

Justification:

AIR FORCE WIDEBAND ENTERPRISE TERMINALS (AFWET) TERMINAL MODERNIZATION: AFWET terminals form the Satellite Communications (SATCOM) backbone of the DoD Information Network (DoDIN), operating over Wideband Global SATCOM (WGS), Defense Satellite Communications System, commercial and Allied satellites. These Enterprise terminals support the command and control requirements of Combatant Commanders worldwide and the communication requirements of the President, Secretary of Defense, Department of State (DoS), US strategic and tactical forces, and the North Atlantic Treaty Organization. The Air Force is responsible for terminal equipment at Air Force operated and maintained Enterprise ground terminal locations. In FY2019, the Air Force funds will extend the life of the system, sustain operational suitability, safety and effectiveness, and maintain high interoperability with other DoD, Army, Navy, and Air Force strategic and tactical terminals. Procurement includes terminal modernization, installation, engineering, integration and site preparation, including radomes, facility monitoring systems, power and communication infrastructure, acceptance testing, Interconnect Facility (ICF), initial spares, Product Support Services (PSS), Advisory and Assistance Services (A&AS), system engineering, training and other related activities. Installation, integration and site preparation costs change substantially based on location. Life extension and modernization efforts also provide incidental increases in capability, allowing for full utilization of WGS capabilities, compliance with directives on the usage of Internet Protocol, adherence to Unified Capabilities Requirements, compliance with DISA and National Security Agency directives and more efficient and effective usage of satellite resources for jam-resistant and anti-scintillation wideband links.

GLOBAL BROADCAST SERVICE (GBS): This AF-led joint program implements a worldwide high-capacity satellite broadcast information system to provide a continuous, one-way, high-speed, high-volume flow of classified and unclassified data and imagery to garrisoned, deployed or moving forces. GBS provides DoD some relief from reliance on leased commercial satellite communications. GBS Receive Suites provide lower-echelon AF users with efficient high-data-rate in-theater to many distributed information sources via satellite-hosted GBS packages. In addition to Prime Mission Equipment, FY2019 funds will fund studies (e.g., part obsolescence, encapsulation of modem, antenna trades, Pre-Planned Product Improvement (P3I) ORD requirements), integration and installation, technical manual updates, Diminishing Manufacturing Supply (DMS), spares, systems engineering, test, training, A&AS, upgrades, incorporation of Transmission Security (TRANSEC), and other related activities.

a. GBS RECEIVE SUITES: The receive suites link users to information sources via GBS, offering worldwide service.

b. GBS PORTABLE RECEIVE SUITES: These are Rucksack and Suitcase variants of the GBS terminals required by Special Operations Forces in forward operating areas.

c. INTERIM NON-TRANSEC MODEM: Interim non-TRANSEC solution was operationally accepted Nov 16. This solution will be used until a TRANSEC solution is Operationally Accepted (OA).

d. JOINT INTERNET PROTOCOL MODEM (JIPM): On November 13, 2014, DoD Chief Information Officer (CIO) re-directed the JIPM acquisition strategy to a commercial-off-the-shelf (COTS) solution.

e. TRANSEC MODEM: GBS was funded in FY2017 thru FY2019 to continue a TRANSEC solution.

f. GBS BROADCAST MANAGER: The Satellite Broadcast Manager (SBM) systems at two of DISA's Defense Enterprise Computing Centers (DECC) that provide the GBS broadcast to the GBS Receive Suites worldwide.

Exhibit P-40, Budget Line Item Justification: PB 2019 Air Force		Date: February 2018
Appropriation / Budget Activity / Budget Sub Activity: 3021F: Space Procurement, Air Force / BA 01: Space Procurement, Air Force / BSA 1: Space Programs	P-1 Line Item Number / Title: MILSAT / MILSATCOM	
ID Code (A=Service Ready, B=Not Service Ready): A	Program Elements for Code B Items: N/A	Other Related Program Elements: N/A
Line Item MDAP/MAIS Code: 199		

MILSATCOM SUSTAINMENT MODIFICATIONS: Provides minor modifications for MILSATCOM systems currently in sustainment and those currently fielded. No FY2019 funding is requested for PE 1203605F SATELLITE COMMUNICATIONS (SATCOMS).

Continue program office and other related support activities that may include, but are not limited to studies, technical analysis, etc.

Rapidly respond to implement system resiliency and situational awareness necessary to operate in the contested space domain. Activities may include, but are not limited to program office support, studies, technical analysis, prototyping, etc.

FY 2019: -$2.383M Rephased GBS for underexecution.

Exhibit P-5, Cost Analysis: PB 2019 Air Force		Date: February 2018
Appropriation / Budget Activity / Budget Sub Activity: 3021F / 01 / 1	**P-1 Line Item Number / Title:** MILSAT / MILSATCOM	**Item Number / Title [DODIC]:** AFWET
ID Code (A=Service Ready, B=Not Service Ready) : A	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	-	33.458	28.833	10.986	-	10.986
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	-	33.458	28.833	10.986	-	10.986
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**-**	**33.458**	**28.833**	**10.986**	**-**	**10.986**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)						
Initial Spares *($ in Millions)*	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Millions)*	-	-	-	-	-	-

Note: Subtotals or Totals in this Exhibit P-5 may not be exact or sum exactly due to rounding.

Cost Elements	Prior Years			FY 2017			FY 2018			FY 2019 Base			FY 2019 OCO			FY 2019 Total		
	Unit Cost *($ M)*	Qty *(Each)*	Total Cost *($ M)*	Unit Cost *($ M)*	Qty *(Each)*	Total Cost *($ M)*	Unit Cost *($ M)*	Qty *(Each)*	Total Cost *($ M)*	Unit Cost *($ M)*	Qty *(Each)*	Total Cost *($ M)*	Unit Cost *($ M)*	Qty *(Each)*	Total Cost *($ M)*	Unit Cost *($ M)*	Qty *(Each)*	Total Cost *($ M)*
Hardware - 1203601F Cost																		
Recurring Cost																		
AFWET - Terminal Modernization	-	-	-	8.843	3	26.529	12.134	2	24.267	-	-	7.113	-	-	-	-	-	7.113
AFWET - Sustainment	-	-	-	-	-	3.424	-	-	1.104	-	-	1.075	-	-	-	-	-	1.075
AFWET - Product Support	-	-	-	-	-	1.360	-	-	1.612	-	-	1.644	-	-	-	-	-	1.644
Subtotal: Recurring Cost	-	-	-	-	-	*31.313*	-	-	*26.983*	-	-	*9.832*	-	-	-	-	-	*9.832*
Subtotal: Hardware - 1203601F Cost	**-**	**-**	**-**	**-**	**-**	***31.313***	**-**	**-**	***26.983***	**-**	**-**	***9.832***	**-**	**-**	**-**	**-**	**-**	***9.832***
Support - 1203601F Cost																		
AFWET - Advisory and Assistance Services (A&AS)	-	-	-	-	-	0.749	-	-	0.509	-	-	0.519	-	-	-	-	-	0.519
AFWET - OTHER SUPPORT	-	-	-	-	-	1.396	-	-	1.341	-	-	0.635	-	-	-	-	-	0.635
Subtotal: Support - 1203601F Cost	**-**	**-**	**-**	**-**	**-**	***2.145***	**-**	**-**	***1.850***	**-**	**-**	***1.154***	**-**	**-**	**-**	**-**	**-**	***1.154***
Gross/Weapon System Cost	**-**	**-**	**-**	**-**	**-**	**33.458**	**-**	**-**	**28.833**	**-**	**-**	**10.986**	**-**	**-**	**-**	**-**	**-**	**10.986**

Exhibit P-5, Cost Analysis: PB 2019 Air Force		Date: February 2018
Appropriation / Budget Activity / Budget Sub Activity: 3021F / 01 / 1	P-1 Line Item Number / Title: MILSAT / MILSATCOM	Item Number / Title [DODIC]: GBS
ID Code (A=Service Ready, B=Not Service Ready) : A		MDAP/MAIS Code:

Resource Summary	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	-	8.043	6.179	0.279	-	0.279
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	-	8.043	6.179	0.279	-	0.279
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**-**	**8.043**	**6.179**	**0.279**	**-**	**0.279**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)						
Initial Spares *($ in Millions)*	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Millions)*	-	-	-	-	-	-

Note: Subtotals or Totals in this Exhibit P-5 may not be exact or sum exactly due to rounding.

Cost Elements	Prior Years			FY 2017			FY 2018			FY 2019 Base			FY 2019 OCO			FY 2019 Total		
	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)
Hardware - 1203601F Cost																		
Recurring Cost																		
GBS - Enterprise Systems Engineering & Integration	-	-	-	-	-	6.707	-	-	3.923	-	-	0.279	-	-	-	-	-	0.279
GBS - Technical Mission Analysis	-	-	-	-	-	0.000	-	-	-	-	-	-	-	-	-	-	-	-
GBS - Receive Suites, Integration and Installation	-	-	-	-	-	1.262	-	-	2.256	-	-	-	-	-	-	-	-	-
Subtotal: Recurring Cost	-	-	-	-	-	*7.969*	-	-	*6.179*	-	-	*0.279*	-	-	-	-	-	*0.279*
Subtotal: Hardware - 1203601F Cost	**-**	**-**	**-**	**-**	**-**	***7.969***	**-**	**-**	***6.179***	**-**	**-**	***0.279***	**-**	**-**	**-**	**-**	**-**	***0.279***
Support - 1203601F Cost																		
GBS - OTHER SUPPORT	-	-	-	-	-	0.074	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Support - 1203601F Cost	**-**	**-**	**-**	**-**	**-**	***0.074***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Gross/Weapon System Cost	**-**	**-**	**-**	**-**	**-**	**8.043**	**-**	**-**	**6.179**	**-**	**-**	**0.279**	**-**	**-**	**-**	**-**	**-**	**0.279**

Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2019 Air Force		Date: February 2018
Appropriation / Budget Activity / Budget Sub Activity: 3021F / 01 / 1	**P-1 Line Item Number / Title:** MILSAT / MILSATCOM	**Aggregated Items Title:** Satellite Communications (SATCOM) O&M

Item Number / Title [DODIC]	ID CD	MDAP/ MAIS Code	Prior Years			FY 2017			FY 2018			FY 2019 Base			FY 2019 OCO			FY 2019 Total		
			Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)
Uncategorized																				
CCS-C	A		-	-	-	-	-	0.272	-	-	0.277	-	-	-	-	-	-	-	-	-
Subtotal: Uncategorized			**-**	**-**	**-**	**-**	**-**	***0.272***	**-**	**-**	***0.277***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Total			**-**	**-**	**-**	**-**	**-**	**0.272**	**-**	**-**	**0.277**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**

Note: Subtotals or Totals in this Exhibit P-40a may not be exact or sum exactly, due to rounding.

Exhibit P-40, Budget Line Item Justification: PB 2019 Air Force	Date: February 2018
Appropriation / Budget Activity / Budget Sub Activity: 3021F: Space Procurement, Air Force / BA 01: Space Procurement, Air Force / BSA 1: Space Programs	**P-1 Line Item Number / Title:** MSEELC / Evolved Expendable Launch Capability

ID Code (A=Service Ready, B=Not Service Ready): A	Program Elements for Code B Items: N/A	Other Related Program Elements: 0604853F
Line Item MDAP/MAIS Code: 176		

Resource Summary	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	To Complete	Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	591.076	716.586	957.420	709.981	0.000	709.981	0.000	0.000	0.000	0.000	-	2,975.063
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	591.076	716.586	957.420	709.981	0.000	709.981	0.000	0.000	0.000	0.000	-	2,975.063
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**591.076**	**716.586**	**957.420**	**709.981**	**0.000**	**709.981**	**0.000**	**0.000**	**0.000**	**0.000**	**-**	**2,975.063**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Flyaway Unit Cost *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-

Description:

The Air Force requests funding for the Evolved Expendable Launch Vehicle (EELV) program in two separate P-1 line items in compliance with the Fiscal Years 2013 and 2014 Appropriation Acts. Launch services will be executed from the Evolved Expendable Launch Veh (Space) P-1 line item. Launch capability will be executed from the Evolved Expendable Launch Veh (Infrastructure) P-1 line item. Both line items are necessary to achieve successful placement of National Security Space (NSS) space vehicles (SVs) on-orbit. To comply with Fiscal Year 2016 National Defense Authorization Act, Air Force plans to end the current EELV Launch Capability at the end of Fiscal year 2019. Beginning in Fiscal Year 2020, the EELV budget request will be in a single P-1 line.

This program does not require and does not include advance procurement or initial spares. Flyaway Unit Cost is not applicable and Weapon System Unit Cost are not representative due to the mix (medium through heavy) of vehicles in the program. EELV procures launch services and is not a weapon system. The program provides launch capacity for Government National Launch Forecast (NLF) requirements, but does not take ownership of any specific launch hardware. The requirements for EELV launch services are derived from multiple spacecraft requirements.

The EELV program is a Major Defense Acquisition Program (MDAP) Acquisition Category (ACAT) 1D program that acquires launch services to provide critical space support required to satisfy Department of Defense (DoD) warfighter, national security, and other Government space lift missions while fostering interagency and commercial cooperation. The EELV program provides satellite delivery to specific orbits through certified launch vehicle providers.

Funding for this exhibit is contained in PE 1203953F.

Exhibit P-40, Budget Line Item Justification: PB 2019 Air Force	Date: February 2018
Appropriation / Budget Activity / Budget Sub Activity: 3021F: Space Procurement, Air Force / BA 01: Space Procurement, Air Force / BSA 1: Space Programs	**P-1 Line Item Number / Title:** MSEELC / Evolved Expendable Launch Capability

ID Code (A=Service Ready, B=Not Service Ready): A	Program Elements for Code B Items: N/A	Other Related Program Elements: 0604853F

Line Item MDAP/MAIS Code: 176

Exhibits Schedule					Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/ MAIS Code	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*
P-5	Evolved Expendable Launch Capability	P-5a	A		- / 591.076	- / 716.586	- / 957.420	- / 709.981	- / 0.000	- / 709.981
P-40	**Total Gross/Weapon System Cost**				**- / 591.076**	**- / 716.586**	**- / 957.420**	**- / 709.981**	**- / 0.000**	**- / 709.981**

*Title represents 1) the Number / Title for Items; 2) the Number / Title [DODIC] for Ammunition; and/or 3) the Number / Title (Modification Type) for Modifications.

Note: Totals in this Exhibit P-40 set may not be exact or sum exactly due to rounding.

Justification:
Fiscal Year 2019 Evolved Expendable Launch Vehicle (Infrastructure) procurement funding is required to support launch and acquisition of National Security Space (NSS) launch vehicles. Evolved Expendable Launch Vehicle (Infrastructure) is annually funded and includes, but is not limited, to systems and factory engineering, program management, standard integration/testing, launch and range activities, infrastructure, parts obsolescence mitigation, post mission analysis, studies and analysis, support costs, non-recurring engineering (NRE) and other efforts necessary to achieve Orbital Debris Mitigation Standard Practice (ODMSP) compliance, to include completing Phase 1 launches that slip beyond 30 September 2019. Funds are also required for fully funded Phase 1A competitive missions with related infrastructure, studies/analysis to include Launch Vehicle (LV) and Satellite Vehicle (SV) Early Integration Studies (EIS), postponement fees, and support costs which are annually funded. Continue program office support and other related support activities that may include, but are not limited to, studies, technical analysis, etc. Fiscal Year 2019 is the final year for EELV Launch Capability funding.

Launch Services (EELV) is requested under a separate P-1 line item in accordance with the direction in the Consolidated and Further Continuing Appropriations Act 2013.

A revised Memorandum of Understanding (MOU) between the Air Force and the National Reconnaissance Office (NRO), dated 7 Oct 2011 provides a cost share agreement for the Phase 1 Launch Capability. This PE contains only the Air Force position.

The SV Program Offices are responsible for funding mission unique integration/testing.

Exhibit P-5, Cost Analysis: PB 2019 Air Force		Date: February 2018
Appropriation / Budget Activity / Budget Sub Activity: 3021F / 01 / 1	**P-1 Line Item Number / Title:** MSEELC / Evolved Expendable Launch Capability	**Item Number / Title [DODIC]:** Evolved Expendable Launch Capability
ID Code (A=Service Ready, B=Not Service Ready) : A		**MDAP/MAIS Code:**

Resource Summary	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	591.076	716.586	957.420	709.981	0.000	709.981
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	591.076	716.586	957.420	709.981	0.000	709.981
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**591.076**	**716.586**	**957.420**	**709.981**	**0.000**	**709.981**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)						
Initial Spares *($ in Millions)*	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Millions)*	-	-	-	-	-	-

Note: Subtotals or Totals in this Exhibit P-5 may not be exact or sum exactly due to rounding.

Cost Elements	Prior Years			FY 2017			FY 2018			FY 2019 Base			FY 2019 OCO			FY 2019 Total		
	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)
Launch - Phase 1/1A Launch Capability Cost																		
Recurring Cost																		
Phase 1 Launch Capability(†)	499.602	1	499.602	614.700	1	614.700	674.403	1	674.403	428.537	1	428.537	-	-	0.000	428.537	1	428.537
Phase 1A Launch Capability(†)	82.271	1	82.271	75.586	1	75.586	244.800	1	244.800	253.045	1	253.045	-	-	0.000	253.045	1	253.045
Subtotal: Recurring Cost	-	-	*581.873*	-	-	*690.286*	-	-	*919.203*	-	-	*681.582*	-	-	*0.000*	-	-	*681.582*
Subtotal: Launch - Phase 1/1A Launch Capability Cost	**-**	**-**	***581.873***	**-**	**-**	***690.286***	**-**	**-**	***919.203***	**-**	**-**	***681.582***	**-**	**-**	***0.000***	**-**	**-**	***681.582***
Support - Support End Item Cost																		
Other Support	-	-	0.555	-	-	0.000	-	-	-	-	-	-	-	-	0.000	-	-	0.000
Independent Readiness Review Team	-	-	8.648	-	-	26.300	-	-	38.217	-	-	28.399	-	-	0.000	-	-	28.399
Subtotal: Support - Support End Item Cost	**-**	**-**	***9.203***	**-**	**-**	***26.300***	**-**	**-**	***38.217***	**-**	**-**	***28.399***	**-**	**-**	***0.000***	**-**	**-**	***28.399***
Gross/Weapon System Cost	**-**	**-**	**591.076**	**-**	**-**	**716.586**	**-**	**-**	**957.420**	**-**	**-**	**709.981**	**-**	**-**	**0.000**	**-**	**-**	**709.981**

Remarks:
A revised Memorandum of Understanding (MOU) between the Air Force and National Reconnaissance Office (NRO), dated 7 October 2011 provides a cost share agreement for the Phase 1 Launch Capability. This PE contains only the Air Force position.

(†) indicates the presence of a P-5a

Exhibit P-5a, Procurement History and Planning: PB 2019 Air Force		Date: February 2018
Appropriation / Budget Activity / Budget Sub Activity: 3021F / 01 / 1	P-1 Line Item Number / Title: MSEELC / Evolved Expendable Launch Capability	Item Number / Title [DODIC]: Evolved Expendable Launch Capability

Cost Elements	OCO	FY	Contractor and Location	Method/Type or Funding Vehicle	Location of PCO	Award Date	Date of First Delivery	Qty (Each)	Unit Cost ($ M)	Specs Avail Now?	Date Revision Available	RFP Issue Date
Phase 1 Launch Capability		2016	United Launch Alliance (ULA)/CO / CO	Various	SMC, LA AFB, CA	Oct 2015	Oct 2015	1	478.902	Y		Mar 2012
Phase 1 Launch Capability		2017	United Launch Alliance (ULA)/CO / CO	Various	SMC, LA AFB, CA	Oct 2016	Oct 2016	1	614.700	Y		Mar 2012
Phase 1 Launch Capability		2018	United Launch Alliance (ULA)/CO / CO	Various	SMC, LA AFB, CA	Oct 2017	Oct 2017	1	674.403	Y		Mar 2012
Phase 1 Launch Capability		2019	United Launch Alliance (ULA)/CO / CO	Various	SMC, LA AFB, CA	Oct 2018	Oct 2018	1	428.537	Y		Mar 2012
Phase 1A Launch Capability		2016	United Launch Alliance(ULA)/ SpaceX / Co/CA	Various	SMC, LA AFB, CA	Apr 2016	May 2018	1	70.927	Y		Sep 2015
Phase 1A Launch Capability		2017	United Launch Alliance(ULA)/ SpaceX / Co/CA / Co/CA	Various	SMC, LA AFB, CA	Dec 2016	Dec 2018	1	75.586	Y		Jun 2016
Phase 1A Launch Capability		2018	United Launch Alliance(ULA)/ SpaceX / Co/CA / Co/CA	Various	SMC, LA AFB, CA	Jan 2018	Jan 2020	1	244.800	Y		Jun 2017
Phase 1A Launch Capability		2019	United Launch Alliance(ULA)/ SpaceX / Co/CA / Co/CA	Various	SMC, LA AFB, CA	Dec 2018	Dec 2020	1	253.045	Y		Jun 2017

Exhibit P-40, Budget Line Item Justification: PB 2019 Air Force	Date: February 2018
Appropriation / Budget Activity / Budget Sub Activity: 3021F: Space Procurement, Air Force / BA 01: Space Procurement, Air Force / BSA 1: Space Programs	**P-1 Line Item Number / Title:** MSEELV / Evolved Expendable Launch Veh(Space)

ID Code (A=Service Ready, B=Not Service Ready): A	Program Elements for Code B Items: N/A	Other Related Program Elements: 0604853F
Line Item MDAP/MAIS Code: 176		

Resource Summary	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	To Complete	Total
Procurement Quantity *(Units in Each)*	3	3	3	5	-	5	3	2	3	4	31	57
Gross/Weapon System Cost *($ in Millions)*	579.851	536.853	606.488	994.555	0.000	994.555	1,177.664	778.542	1,146.882	1,305.955	11,311.986	18,438.776
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	579.851	536.853	606.488	994.555	0.000	994.555	1,177.664	778.542	1,146.882	1,305.955	11,311.986	18,438.776
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**579.851**	**536.853**	**606.488**	**994.555**	**0.000**	**994.555**	**1,177.664**	**778.542**	**1,146.882**	**1,305.955**	**11,311.986**	**18,438.776**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Flyaway Unit Cost *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Millions)*	193.284	178.951	202.163	198.911	-	198.911	392.555	389.271	382.294	326.489	364.903	323.487

Description:

The Air Force requests funding for the Evolved Expendable Launch Vehicle (EELV) program in two separate P-1 line items in compliance with the Fiscal Years 2013 and 2014 Appropriations Acts. Launch services will be executed from the Evolved Expendable Launch Veh (Space) P-1 line item. Launch capability will be executed from the Evolved Expendable Launch Veh (Infrastructure) P-1 line item. Both line items are necessary to achieve successful placement of National Security Space (NSS) space vehicles (SVs) on-orbit. To comply with Fiscal Year 2016 National Defense Authorization Act, Air Force plans to end the current EELV Launch Capability at the end of Fiscal year 2019. Beginning in Fiscal Year 2020, the EELV budget request will be in a single P-1 line. Fiscal Year 2017 was the final ordering period for the Phase 1 block buy contract.

This program does not require and does not include advance procurement or initial spares. Flyaway Unit Cost is not applicable and Weapon System Unit Cost are not representative due to the mix (medium through heavy) of vehicles in the program. EELV procures launch services and is not a weapon system. The program provides launch capacity for the Government National Launch Forecast (NLF) requirements, but does not take ownership of any specific launch hardware. The requirements for EELV launch services are derived from multiple spacecraft requirements. "To Complete" projections include only known requirements at this time.

The EELV program is a Major Defense Acquisition Program (MDAP) Acquisition Category (ACAT)1D program that acquires launch services to provide critical space support to satisfy Department of Defense (DoD) warfighter, national security, and other Government space lift missions while fostering inter-agency and commercial cooperation. The EELV program provides satellite delivery to specific orbits through certified Launch Vehicle (LV) providers.

The Air Force, National Reconnaissance Office (NRO), and the National Aeronautics and Space Administration (NASA) agreed to a coordinated strategy for certification of New Entrants to launch payloads in support of NSS and other USG requirements which has so far resulted in the certification of one New Entrant. The Air Force continues to actively work with potential New Entrants to reliably launch NSS requirements. The Government may award early integration contracts to ensure each potential offeror's launch system is compatible with the intended payload. As of Fiscal Year 2018, the Air Force's intent is to compete as much as possible all launch service procurements where more than one certified provider can service the required reference orbit.

In fiscal year 2019, this appropriation is funded to support two Propulsive EELV Secondary Payload Adapters (ESPA). One Propulsive ESPA is assigned to a specific launch service while the other Propulsive ESPA is currently unassigned, but will be designated for a future launch service. Beginning in fiscal year 2020, the Air Force plans to transfer the Propulsive ESPA funding to a new program and appropriation.

Funding for this exhibit is contained in PE 1203953F.

Exhibit P-40, Budget Line Item Justification: PB 2019 Air Force		Date: February 2018
Appropriation / Budget Activity / Budget Sub Activity: 3021F: Space Procurement, Air Force / BA 01: Space Procurement, Air Force / BSA 1: Space Programs	**P-1 Line Item Number / Title:** MSEELV / Evolved Expendable Launch Veh(Space)	
ID Code (A=Service Ready, B=Not Service Ready): A	**Program Elements for Code B Items:** N/A	**Other Related Program Elements:** 0604853F
Line Item MDAP/MAIS Code: 176		

Exhibits Schedule					Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/ MAIS Code	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*
P-5	Evolved Expendable Launch Veh(Space)	P-5a, P-21	A		3 / 579.851	3 / 536.853	3 / 606.488	5 / 994.555	- / 0.000	5 / 994.555
P-40	**Total Gross/Weapon System Cost**				**3 / 579.851**	**3 / 536.853**	**3 / 606.488**	**5 / 994.555**	**- / 0.000**	**5 / 994.555**

*Title represents 1) the Number / Title for Items; 2) the Number / Title [DODIC] for Ammunition; and/or 3) the Number / Title (Modification Type) for Modifications.

Note: Totals in this Exhibit P-40 set may not be exact or sum exactly due to rounding.

Justification:

Fiscal Year 2019 Evolved Expendable Launch Vehicle (Space) procurement funding is to acquire launch services to provide critical space support required to satisfy Department of Defense (DoD) warfighter, national security, and other Government space lift missions while fostering interagency and commercial cooperation. Launch services include, but are not limited to, launch vehicle manufacturing, mission success incentives, recurring costs for Orbital Debris Mitigation Standard Practice, EELV secondary payload adapter/rideshare, launch propellants, independent mission assurance, evaluation and certification of potential New Entrants, early integration activities and analysis/support, and any other related studies to support mission requirements. The Air Force is responsible for funding its own missions. In fiscal year 2019, there is a one time procurement of a Long Duration Propulsive EELV Secondary Payload Adapters (ESPA) not associated with a launch service.

All non-Air Force EELV launch services are funded within their respective entities (e.g. NRO, Navy). Continue program office support and other related support activities that may include, but are not limited to, studies, technical analysis, etc.

Exhibit P-5, Cost Analysis: PB 2019 Air Force		Date: February 2018
Appropriation / Budget Activity / Budget Sub Activity: 3021F / 01 / 1	**P-1 Line Item Number / Title:** MSEELV / Evolved Expendable Launch Veh(Space)	**Item Number / Title [DODIC]:** Evolved Expendable Launch Veh(Space)
ID Code (A=Service Ready, B=Not Service Ready) : A		**MDAP/MAIS Code:**

Resource Summary	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Procurement Quantity *(Units in Each)*	3	3	3	5	-	5
Gross/Weapon System Cost *($ in Millions)*	579.851	536.853	606.488	994.555	0.000	994.555
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	579.851	536.853	606.488	994.555	0.000	994.555
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**579.851**	**536.853**	**606.488**	**994.555**	**0.000**	**994.555**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)						
Initial Spares *($ in Millions)*	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Millions)*	193.284	178.951	202.163	198.911	-	198.911

Note: Subtotals or Totals in this Exhibit P-5 may not be exact or sum exactly due to rounding.

Cost Elements	Prior Years			FY 2017			FY 2018			FY 2019 Base			FY 2019 OCO			FY 2019 Total		
	Unit Cost *($ M)*	Qty *(Each)*	Total Cost *($ M)*	Unit Cost *($ M)*	Qty *(Each)*	Total Cost *($ M)*	Unit Cost *($ M)*	Qty *(Each)*	Total Cost *($ M)*	Unit Cost *($ M)*	Qty *(Each)*	Total Cost *($ M)*	Unit Cost *($ M)*	Qty *(Each)*	Total Cost *($ M)*	Unit Cost *($ M)*	Qty *(Each)*	Total Cost *($ M)*
Launch - Launch End Item Cost																		
Recurring Cost																		
Launch Services(†)	147.270	3	441.809	134.721	3	404.164	144.957	3	434.872	152.217	5	761.086	-	-	0.000	152.217	5	761.086
EELV Enterprise Systems Engineering & Integration	-	-	20.794	-	-	22.732	-	-	42.159	-	-	51.964	-	-	0.000	-	-	51.964
Mission Assurance	-	-	86.408	-	-	77.652	-	-	89.328	-	-	140.455	-	-	0.000	-	-	140.455
Subtotal: Recurring Cost	-	-	*549.011*	-	-	*504.548*	-	-	*566.359*	-	-	*953.505*	-	-	*0.000*	-	-	*953.505*
Subtotal: Launch - Launch End Item Cost	**-**	**-**	***549.011***	**-**	**-**	***504.548***	**-**	**-**	***566.359***	**-**	**-**	***953.505***	**-**	**-**	***0.000***	**-**	**-**	***953.505***
Support - Support End Item Cost																		
Other Support	-	-	1.775	-	-	2.247	-	-	2.461	-	-	2.486	-	-	0.000	-	-	2.486
A&AS	-	-	5.380	-	-	4.902	-	-	12.715	-	-	12.970	-	-	0.000	-	-	12.970
FFRDC	-	-	23.685	-	-	25.156	-	-	24.953	-	-	25.594	-	-	0.000	-	-	25.594
Subtotal: Support - Support End Item Cost	**-**	**-**	***30.840***	**-**	**-**	***32.305***	**-**	**-**	***40.129***	**-**	**-**	***41.050***	**-**	**-**	***0.000***	**-**	**-**	***41.050***
Gross/Weapon System Cost	**193.284**	**3**	**579.851**	**178.951**	**3**	**536.853**	**202.163**	**3**	**606.488**	**198.911**	**5**	**994.555**	**-**	**-**	**0.000**	**198.911**	**5**	**994.555**

Remarks:

Flyaway is not applicable to a program that procures launch services. Unit cost varies due to the mix (medium through heavy lift) of vehicles in the program.

A Memorandum of Understanding (MOU) between the NRO and the Air Force, dated 7 October 2011, specifies a 60/40 Air Force/NRO share ratio for Federally Funded Research and Development Center (FFRDC) Mission Assurance.

Exhibit P-5, Cost Analysis: PB 2019 Air Force		Date: February 2018
Appropriation / Budget Activity / Budget Sub Activity: 3021F / 01 / 1	P-1 Line Item Number / Title: MSEELV / Evolved Expendable Launch Veh(Space)	Item Number / Title [DODIC]: Evolved Expendable Launch Veh(Space)
ID Code (A=Service Ready, B=Not Service Ready) : A		MDAP/MAIS Code:

All non-Air Force launch services are funded by their respective agencies.

System Engineering and Integration increased due to ramping-up from one New Entrant Certification effort in FY16 to four in FY19.

Mission Assurance also increased due to going from one New Entrant Certification effort in FY16 to four in FY19.

(†) indicates the presence of a P-5a

Exhibit P-5a, Procurement History and Planning: PB 2019 Air Force		Date: February 2018
Appropriation / Budget Activity / Budget Sub Activity: 3021F / 01 / 1	P-1 Line Item Number / Title: MSEELV / Evolved Expendable Launch Veh(Space)	Item Number / Title [DODIC]: Evolved Expendable Launch Veh(Space)

Cost Elements	OCO	FY	Contractor and Location	Method/Type or Funding Vehicle	Location of PCO	Award Date	Date of First Delivery	Qty (Each)	Unit Cost ($ M)	Specs Avail Now?	Date Revision Available	RFP Issue Date
Launch Services(†)		2016	United Launch Alliance (ULA)/SpaceX / CO/CA	Various	SMC, LA AFB, CA	Dec 2015	Feb 2019	3	139.014	Y		Mar 2012
Launch Services(†)		2017	United Launch Alliance (ULA)/SpaceX / CO/CA	Various	SMC, LA AFB, CA	Dec 2016	Dec 2019	3	134.721	Y		Mar 2012
Launch Services(†)		2018	United Launch Alliance (ULA)/SpaceX / CO/CA	Various	SMC, LA AFB, CA	Jan 2018	Jan 2020	3	144.957	Y		Jun 2017
Launch Services(†)		2019	TBD / TBD	Various	SMC, LA AFB, CA	Jan 2019	Jan 2021	5	152.217	Y		Jun 2017

(†) indicates the presence of a P-21

Exhibit P-21, Production Schedule: PB 2019 Air Force		Date: February 2018
Appropriation / Budget Activity / Budget Sub Activity: 3021F / 01 / 1	**P-1 Line Item Number / Title:** MSEELV / Evolved Expendable Launch Veh(Space)	**Item Number / Title [DODIC]:** Evolved Expendable Launch Veh(Space)

Cost Elements (Units in Each)							Fiscal Year 2016												Fiscal Year 2017											BALANCE
										Calendar Year 2016														Calendar Year 2017									
OCO	MFR #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2015	BAL DUE AS OF 1 OCT	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	
Launch Services																														
	1	2016	AF	3	0	3			A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3
	1	2017	AF	3	0	3															A -	-	-	-	-	-	-	-	-	-	3
	1	2018	AF	3	0	3																									3
	2	2019	AF	5	0	5																									5
							OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	

Exhibit P-21, Production Schedule: PB 2019 Air Force		Date: February 2018
Appropriation / Budget Activity / Budget Sub Activity: 3021F / 01 / 1	P-1 Line Item Number / Title: MSEELV / Evolved Expendable Launch Veh(Space)	Item Number / Title [DODIC]: Evolved Expendable Launch Veh(Space)

Cost Elements (Units in Each)							Fiscal Year 2018												Fiscal Year 2019											BALANCE
										Calendar Year 2018														Calendar Year 2019									
OCO	MFR #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2017	BAL DUE AS OF 1 OCT	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	
Launch Services																															
	1	2016	AF	3	0	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	1	1			0
	1	2017	AF	3	0	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3
	1	2018	AF	3	0	3				A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3
	2	2019	AF	5	0	5																A -	-	-	-	-	-	-	-	-	5
							OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	

Exhibit P-21, Production Schedule: PB 2019 Air Force		Date: February 2018
Appropriation / Budget Activity / Budget Sub Activity: 3021F / 01 / 1	**P-1 Line Item Number / Title:** MSEELV / Evolved Expendable Launch Veh(Space)	**Item Number / Title [DODIC]:** Evolved Expendable Launch Veh(Space)

Cost Elements (Units in Each)							Fiscal Year 2020												Fiscal Year 2021												BALANCE
							Calendar Year 2020												Calendar Year 2021													
OCO	MFR #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2019	BAL DUE AS OF 1 OCT	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	
Launch Services																															
	1	2016	AF	3	3	0																									0
	1	2017	AF	3	0	3	-	-	1	-	-	1	1																		0
	1	2018	AF	3	0	3	-	-	-	3																					0
	2	2019	AF	5	0	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5									0
							OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	

Exhibit P-21, Production Schedule: PB 2019 Air Force		Date: February 2018
Appropriation / Budget Activity / Budget Sub Activity: 3021F / 01 / 1	**P-1 Line Item Number / Title:** MSEELV / Evolved Expendable Launch Veh(Space)	**Item Number / Title [DODIC]:** Evolved Expendable Launch Veh(Space)

MFR Ref #	Manufacturer Name - Location	Production Rates (Each / Year)			Procurement Leadtime (Months)							
					Initial				Reorder			
		MSR For 2019	1-8-5 For 2019	MAX For 2019	ALT Prior to Oct 1	ALT After Oct 1	Manufacturing PLT	Total After Oct 1	ALT Prior to Oct 1	ALT After Oct 1	Manufacturing PLT	Total After Oct 1
1	United Launch Alliance (ULA)/SpaceX - CO/CA				0	0	0	0	0	0	0	0
2	TBD - TBD	3	8	10	0	0	0	0	0	4	24	28

"A" in the Delivery Schedule indicates the Contract Award Date.
Note: Due to space limitations, quantities in the Exhibit P-21 delivery calendar are truncated and rounded based on the maximum quantity in the calendar as follows. If the maximum quantity is less than or equal to than 9,999, all quantities are shown as each. If the maximum quantity is between 10,000 and 999,999 all quantities are shown in thousands. If the maximum quantity is between 1,000,000 and 999,999,999 all quantities are shown in millions (rounded to the nearest thousand).If the maximum quantity is equal or greater than 1,000,000,000 all quantities are shown in billions (rounded to the nearest million).

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Exhibit P-40, Budget Line Item Justification: PB 2019 Air Force	Date: February 2018
Appropriation / Budget Activity / Budget Sub Activity: 3021F: Space Procurement, Air Force / BA 01: Space Procurement, Air Force / BSA 1: Space Programs	**P-1 Line Item Number / Title:** MSSBIR / SBIR High (Space)

ID Code (A=Service Ready, B=Not Service Ready): A	Program Elements for Code B Items: 0604441F	Other Related Program Elements: 1206441F
Line Item MDAP/MAIS Code: 210		

Resource Summary	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	To Complete	Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	542.714	355.114	981.009	138.397	0.000	138.397	268.972	113.065	8.188	8.340	0.000	2,415.799
Less PY Advance Procurement *($ in Millions)*	-	0.000	0.000	0.000	-	0.000	132.420	0.000	0.000	0.000	-	132.420
Net Procurement (P-1) *($ in Millions)*	542.714	355.114	981.009	138.397	0.000	138.397	136.552	113.065	8.188	8.340	0.000	2,283.379
Plus CY Advance Procurement *($ in Millions)*	-	0.000	132.420	0.000	-	0.000	0.000	0.000	0.000	0.000	-	132.420
Total Obligation Authority *($ in Millions)*	**542.714**	**355.114**	**1,113.429**	**138.397**	**0.000**	**138.397**	**136.552**	**113.065**	**8.188**	**8.340**	**0.000**	**2,415.799**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Flyaway Unit Cost *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-

Description:

Note: The flyaway unit cost is not included on the P-40 exhibit because there are multiple P-5 Cost Analysis exhibits.

Funding for this exhibit contained in PE 1203915F.

The Space Based Infrared System's (SBIRS) primary mission is to provide initial warning of a ballistic missile attack on the US, its deployed forces and its allies. SBIRS enhances detection and improves reporting of intercontinental ballistic missiles, submarine launched ballistic missiles, and tactical ballistic missiles. SBIRS provides increased detection and tracking performance in order to meet requirements in the Operational Requirements Document (ORD). SBIRS will consist of satellites in Geosynchronous Earth Orbit (GEO) and in Highly Elliptical Orbit (HEO) with an integrated, centralized ground station serving all SBIRS space elements, Defense Support Program (DSP) satellites and other program related support activities. The HEO payloads operate on a classified host.

SBIRS 3-8 SATELLITES:

SBIRS GEO-3 and 4 satellites are derivatives of the first two GEO satellites which were delivered on the SBIRS Engineering and Manufacturing Development (EMD) contract (RDT&E funded). The GEO-3 and 4 satellite production efforts are necessary to meet constellation requirements. In Dec 2008, the Department approved the procurement of GEO-3 and 4 satellites and the HEO-3 and 4 payloads using a Cost-Plus contract. In order to minimize the number of storage actions and costs associated with aligning the SBIRS launches to the earliest assigned Initial Launch Capability (ILC) date of Apr 2016, the GEO-3 satellite completed production and was placed into storage in Jul 2015. The GEO-4 satellite launched as the third flight (GEO-4 Flight-3) in Jan 2017. The GEO-3 (Flight-4) satellite launched Jan 2018.

SBIRS GEO-5 and 6 satellites are derivatives of the GEO-3 and 4 satellites and will be replacements for GEO-1 and 2. A four phased contract approach awarded non-recurring engineering and parts obsolescence using advanced procurement funds in Sep 2012, followed by award of long lead items in Feb 2013, full production in Jun 2014, and technical refresh in Jun 2015. The GEO-5 and 6 technical refresh contract modification modernizes the existing spacecraft bus design to improve commonality across Air Force and Government satellite programs, and enable compatibility with multiple launch vehicles. The full production effort includes 2 satellites with persistent infrared missile and threat warning payloads, launch vehicle integration, launch and early orbit test, dual communication band modification (unified SBand), and contractor operations support through operational acceptance.

For the GEO 5-6 block buy, the FY 2013 NDAA authorizes six years of incremental production funding and limits the incrementally funded contract obligation to $3,900M. The years of incremental funding are FY 2013-2018. Advance procurement was appropriated in FY 2011 and FY 2012. GEO 5-6 advance procurement and incremental funding are attributed to FY 2013 for the purposes of identifying full funding for

Exhibit P-40, Budget Line Item Justification: PB 2019 Air Force		Date: February 2018
Appropriation / Budget Activity / Budget Sub Activity: 3021F: Space Procurement, Air Force / BA 01: Space Procurement, Air Force / BSA 1: Space Programs	P-1 Line Item Number / Title: MSSBIR / SBIR High (Space)	
ID Code (A=Service Ready, B=Not Service Ready): A	Program Elements for Code B Items: 0604441F	Other Related Program Elements: 1206441F
Line Item MDAP/MAIS Code: 210		

procurement end items. Each year of appropriation FY 2013-2018 is in two parts, the incrementally funded contract amount and annual program support costs. The incrementally funded amount complies with the NDAA cap.

No FY2019 funding requested for SBIRS Space Vehicles 7 and 8; effort being restructured

SBIRS HEO-3 and 4 payloads are replenishments for HEO-1 and 2 payloads, which were delivered on the SBIRS Engineering and Manufacturing Development (EMD) contract (RDT&E funded). The HEO-1 and 2 payloads are on-orbit and certified for Integrated Tactical Warning/Attack Assessment (ITW/AA) missile warning operations and certified for technical intelligence operations. The HEO-3 payload is on-orbit and has completed its initial checkout. The HEO-4 payload was delivered to the classified host in May 2015.

Total GEO 3-4 3020/3021 funds are $2,845.737M.
Total GEO 5-6 3020/3021 funds are $3,449.057M.
Total HEO 3-4 3020/3021 funds are $1,146.672M.

SBIRS MOBILE AND FIXED SITE COMMUNICATIONS/ELECTRONIC REPLACEMENT: This effort procures DSP and SBIRS assets to maintain the Data Processing Sub-System. Fixed site examples include, but are not limited to, legacy receiver, antenna drive system, Spacecraft Simulator RF, MCS display, Rapid Delog (instantaneous translation of computer data to a human-readable format), Sybase database obsolescence, communications and network routers, and switches and time server replacements. Mobile system examples include, but are not limited to, aging radio frequency communications equipment, aging antenna equipment, aging electrical equipment and cabling, and unsupportable data processing subsystem components. Funding for this effort is in program element 1203915F and was previously funded under Other Procurement Air Force (OPAF).

SBIRS SURVIVABLE ENDURABLE EVOLUTION (S2E2): The S2E2 effort recapitalizes the DSP Mobile Ground System (MGS) DSP Mobile Ground Terminals with SBIRS Mobile Ground Terminals (SMGT). The MGS is the only US Survivable and Endurable (S/E) Tactical Warning and Attack Assessment (TW/AA) system (S/E TW/AA). It is the critical Situation Monitoring element in three national-level architectures: Integrated TW/AA System, Chairman, Joint Chiefs of Staff (CJCS) Critical Nodes, and Nuclear Command and Control System (NCCS). USSTRATCOM needs AFSPCs global S/E TW/AA operational capabilities to meet President of the United States, Joint Staff, Combatant Commander and Forward User (FU) requirements for continuous, persistent, and enduring TW/AA non-imaging infrared (NIR) for Missile Warning and static events, and Nuclear Detonation (NUDET) detection and reporting across all phases of military operations. The current MGS can only process DSP data for strategic Missile Warning and NUDET detection. This effort will address long-standing obsolescence/supportability and cyber security concerns of the MGS, enable the MGS to process SBIRS and DSP satellite data. Training software, spares and integration of Universal Ground NDS Terminals (UGNTs) are included. The shelters will also be upgraded for increased protection from high altitude electromagnetic pulse (HEMP) per MIL-STD-188-125-2. Funding for this effort is in program element 1203915F and was previously funded under Other Procurement Air Force (OPAF).

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."

Rapidly respond to implement system resiliency and situational awareness necessary to operate in the contested space domain. These activities may include, but are not limited to program office support, studies, technical analysis, prototyping, etc.

Exhibit P-40, Budget Line Item Justification: PB 2019 Air Force	Date: February 2018
Appropriation / Budget Activity / Budget Sub Activity: 3021F: Space Procurement, Air Force / BA 01: Space Procurement, Air Force / BSA 1: Space Programs	**P-1 Line Item Number / Title:** MSSBIR / SBIR High (Space)
ID Code (A=Service Ready, B=Not Service Ready): A	**Program Elements for Code B Items:** 0604441F / **Other Related Program Elements:** 1206441F
Line Item MDAP/MAIS Code: 210	

Exhibits Schedule					Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/ MAIS Code	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*
P-5	GEO 3-4		A		- / 62.501	- / 93.569	- / 27.756	- / -	- / -	- / -
P-5	GEO 5-6		A		- / 379.662	- / 233.457	- / 938.061	- / 129.970	- / -	- / 129.970
P-5	SV 7-8		A		- / -	- / -	- / 0.000	- / -	- / -	- / -
P-5	HEO 3-4		A		- / 10.361	- / 20.547	- / 7.499	- / -	- / -	- / -
P-5	SBIRS Survivable Endurable Evolution (S2E2)	P-5a	A		- / 82.514	- / -	- / -	- / -	- / -	- / -
P-3a	1 / SBIRS Mobile System & Fixed Comm Electronics Upgrades (Reliability & Maintainability)		B		- / 7.676	- / 7.541	- / 7.693	- / 8.427	- / 0.000	- / 8.427
P-40	**Total Gross/Weapon System Cost**				**- / 542.714**	**- / 355.114**	**- / 981.009**	**- / 138.397**	**- / 0.000**	**- / 138.397**

Exhibits Schedule					FY 2020	FY 2021	FY 2022	FY 2023	To Complete	Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/ MAIS Code	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*
P-5	GEO 3-4		A		- / -	- / -	- / -	- / -	- / -	- / -
P-5	GEO 5-6		A		- / -	- / -	- / -	- / -	- / -	- / -
P-5	SV 7-8		A		- / -	- / -	- / -	- / -	- / -	- / -
P-5	HEO 3-4		A		- / -	- / -	- / -	- / -	- / -	- / -
P-5	SBIRS Survivable Endurable Evolution (S2E2)	P-5a	A		- / -	- / -	- / -	- / -	- / -	- / -
P-3a	1 / SBIRS Mobile System & Fixed Comm Electronics Upgrades (Reliability & Maintainability)		B		- / 8.550	- / 8.026	- / 8.188	- / 8.340	- / -	- / 64.441
P-40	**Total Gross/Weapon System Cost**				**- / 268.972**	**- / 113.065**	**- / 8.188**	**- / 8.340**	**- / 0.000**	**- / 2,415.799**

*Title represents 1) the Number / Title for Items; 2) the Number / Title [DODIC] for Ammunition; and/or 3) the Number / Title (Modification Type) for Modifications.

Note: Totals in this Exhibit P-40 set may not be exact or sum exactly due to rounding.

Justification:
FY 2019 funding provides for launch integration for GEO-5 and 6 satellites and continued program/product support.

No FY 2019 funding requested for SBIRS Space Vehicles 7 and 8; effort being restructured

FY 2019 funding procures SBIRS mobiles/ground hardware and/or software. SBIRS Mobile System & Fixed Site Communications/Electronics Upgrades.

Rapidly respond to implement system resiliency and situational awareness necessary to operate in the contested space domain. These activities may include, but are not limited to program office support, studies, technical analysis, prototyping, etc.

The FY 2019 funding request was reduced by $4.8M to account for the availability of prior year execution balances.

Exhibit P-5, Cost Analysis: PB 2019 Air Force		Date: February 2018
Appropriation / Budget Activity / Budget Sub Activity: 3021F / 01 / 1	**P-1 Line Item Number / Title:** MSSBIR / SBIR High (Space)	**Item Number / Title [DODIC]:** GEO 3-4
ID Code (A=Service Ready, B=Not Service Ready) : A	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	62.501	93.569	27.756	-	-	-
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	62.501	93.569	27.756	-	-	-
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**62.501**	**93.569**	**27.756**	**-**	**-**	**-**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)						
Initial Spares *($ in Millions)*	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Millions)*	-	-	-	-	-	-

Note: Subtotals or Totals in this Exhibit P-5 may not be exact or sum exactly due to rounding.

Cost Elements	Prior Years			FY 2017			FY 2018			FY 2019 Base			FY 2019 OCO			FY 2019 Total		
	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)
Space Vehicle - GEO 3-4 Cost																		
Recurring Cost																		
GEO 3-4 Hardware	-	-	0.241	-	-	0.621	-	-	-	-	-	-	-	-	-	-	-	-
GEO 3-4 Integration and Assembly	-	-	7.459	-	-	3.117	-	-	9.485	-	-	-	-	-	-	-	-	-
GEO 3-4 Enterprise Systems Engineering & Integration (SE&I)	-	-	10.418	-	-	0.000	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Recurring Cost	-	-	*18.118*	-	-	*3.738*	-	-	*9.485*	-	-	-	-	-	-	-	-	-
Non Recurring Cost																		
GEO 3-4 Launch Vehicle and Range Integration	-	-	3.145	-	-	10.149	-	-	3.684	-	-	-	-	-	-	-	-	-
Subtotal: Non Recurring Cost	-	-	*3.145*	-	-	*10.149*	-	-	*3.684*	-	-	-	-	-	-	-	-	-
Subtotal: Space Vehicle - GEO 3-4 Cost	**-**	**-**	***21.263***	**-**	**-**	***13.887***	**-**	**-**	***13.169***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Checkout and Launch - GEO 3-4 Cost																		
GEO 3-4 Launch Ops & Checkout	-	-	19.238	-	-	57.682	-	-	14.587	-	-	-	-	-	-	-	-	-
Interim Contractor Support (ICS)	-	-	22.000	-	-	22.000	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Checkout and Launch - GEO 3-4 Cost	**-**	**-**	***41.238***	**-**	**-**	***79.682***	**-**	**-**	***14.587***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Gross/Weapon System Cost	**-**	**-**	**62.501**	**-**	**-**	**93.569**	**-**	**-**	**27.756**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**

Exhibit P-5, Cost Analysis: PB 2019 Air Force		Date: February 2018
Appropriation / Budget Activity / Budget Sub Activity: 3021F / 01 / 1	**P-1 Line Item Number / Title:** MSSBIR / SBIR High (Space)	**Item Number / Title [DODIC]:** GEO 3-4
ID Code (A=Service Ready, B=Not Service Ready) : A		**MDAP/MAIS Code:**

Remarks:
Total GEO 3-4 3020/3021 funds are $2,845.737M.

Exhibit P-5, Cost Analysis: PB 2019 Air Force		Date: February 2018
Appropriation / Budget Activity / Budget Sub Activity: 3021F / 01 / 1	**P-1 Line Item Number / Title:** MSSBIR / SBIR High (Space)	**Item Number / Title [DODIC]:** GEO 5-6
ID Code (A=Service Ready, B=Not Service Ready) : A	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	379.662	233.457	938.061	129.970	-	129.970
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	379.662	233.457	938.061	129.970	-	129.970
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**379.662**	**233.457**	**938.061**	**129.970**	**-**	**129.970**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)						
Initial Spares *($ in Millions)*	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Millions)*	-	-	-	-	-	-

Note: Subtotals or Totals in this Exhibit P-5 may not be exact or sum exactly due to rounding.

Cost Elements	Prior Years			FY 2017			FY 2018			FY 2019 Base			FY 2019 OCO			FY 2019 Total		
	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)
Space Vehicle - GEO 5-6 Cost																		
Recurring Cost																		
GEO 5-6 Hardware	-	-	223.535	-	-	84.108	-	-	190.320	-	-	1.997	-	-	-	-	-	1.997
GEO 5-6 Integration and Assembly	-	-	51.759	-	-	58.931	-	-	287.224	-	-	11.323	-	-	-	-	-	11.323
GEO 5-6 Enterprise Systems Engineering & Integration (SE&I)	-	-	-	-	-	17.114	-	-	23.749	-	-	8.505	-	-	-	-	-	8.505
Technical Mission Analysis	-	-	22.415	-	-	26.788	-	-	19.735	-	-	19.004	-	-	-	-	-	19.004
Subtotal: Recurring Cost	-	-	*297.709*	-	-	*186.941*	-	-	*521.028*	-	-	*40.829*	-	-	-	-	-	*40.829*
Non Recurring Cost																		
GEO 5-6 Obsolescence Non-Recurring	-	-	26.071	-	-	15.314	-	-	4.712	-	-	-	-	-	-	-	-	-
GEO 5-6 Launch Vehicle and Range Integration	-	-	3.072	-	-	0.958	-	-	47.021	-	-	35.371	-	-	-	-	-	35.371
Subtotal: Non Recurring Cost	-	-	*29.143*	-	-	*16.272*	-	-	*51.733*	-	-	*35.371*	-	-	-	-	-	*35.371*
Subtotal: Space Vehicle - GEO 5-6 Cost	**-**	**-**	***326.852***	**-**	**-**	***203.213***	**-**	**-**	***572.761***	**-**	**-**	***76.200***	**-**	**-**	**-**	**-**	**-**	***76.200***
Checkout and Launch - GEO 5-6 Cost																		
GEO 5-6 Launch Ops & Checkout	-	-	0.500	-	-	0.000	-	-	290.085	-	-	-	-	-	-	-	-	-

Exhibit P-5, Cost Analysis: PB 2019 Air Force		Date: February 2018
Appropriation / Budget Activity / Budget Sub Activity: 3021F / 01 / 1	P-1 Line Item Number / Title: MSSBIR / SBIR High (Space)	Item Number / Title [DODIC]: GEO 5-6
ID Code (A=Service Ready, B=Not Service Ready) : A	MDAP/MAIS Code:	

Note: Subtotals or Totals in this Exhibit P-5 may not be exact or sum exactly due to rounding.

Cost Elements	Prior Years			FY 2017			FY 2018			FY 2019 Base			FY 2019 OCO			FY 2019 Total		
	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)
Interim Contractor Support (ICS)	-	-	-	-	-	-	-	-	25.000	-	-	25.000	-	-	-	-	-	25.000
Subtotal: Checkout and Launch - GEO 5-6 Cost	**-**	**-**	***0.500***	**-**	**-**	***0.000***	**-**	**-**	***315.085***	**-**	**-**	***25.000***	**-**	**-**	**-**	**-**	**-**	***25.000***
Support - GEO 5-6 Cost																		
Other Support	-	-	17.994	-	-	12.832	-	-	15.966	-	-	8.764	-	-	-	-	-	8.764
FFRDC	-	-	11.818	-	-	10.000	-	-	11.622	-	-	11.191	-	-	-	-	-	11.191
A&AS	-	-	22.498	-	-	7.412	-	-	22.627	-	-	8.815	-	-	-	-	-	8.815
Subtotal: Support - GEO 5-6 Cost	**-**	**-**	***52.310***	**-**	**-**	***30.244***	**-**	**-**	***50.215***	**-**	**-**	***28.770***	**-**	**-**	**-**	**-**	**-**	***28.770***
Gross/Weapon System Cost	**-**	**-**	**379.662**	**-**	**-**	**233.457**	**-**	**-**	**938.061**	**-**	**-**	**129.970**	**-**	**-**	**-**	**-**	**-**	**129.970**

Remarks:

The incrementally funded amount includes the above Total Space Vehicle Cost (less: SE&I,Launch Vehicle & Range Integration, and Interim Contractor Support) and Launch Ops & Checkout Cost. Total incrementally funded amount of $2,883.5M complies with FY13 NDAA limiting procurement cost to $3,900M.

The FY 2013 gross weapon system cost includes advance procurement amount of $243.314M appropriated in FY 2011 and $243.500M appropriated in FY12.

Total GEO 5-6 3020/3021 funds are $3,449.057M.

Exhibit P-5, Cost Analysis: PB 2019 Air Force		Date: February 2018
Appropriation / Budget Activity / Budget Sub Activity: 3021F / 01 / 1	P-1 Line Item Number / Title: MSSBIR / SBIR High (Space)	Item Number / Title [DODIC]: SV 7-8
ID Code (A=Service Ready, B=Not Service Ready) : A	MDAP/MAIS Code:	

Resource Summary	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	-	-	0.000	-	-	-
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	-	-	0.000	-	-	-
Plus CY Advance Procurement *($ in Millions)*	-	-	132.420	-	-	-
Total Obligation Authority *($ in Millions)*	**-**	**-**	**132.420**	**-**	**-**	**-**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)						
Initial Spares *($ in Millions)*	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Millions)*	-	-	-	-	-	-

Note: Subtotals or Totals in this Exhibit P-5 may not be exact or sum exactly due to rounding.

Cost Elements	Prior Years			FY 2017			FY 2018			FY 2019 Base			FY 2019 OCO			FY 2019 Total		
	Unit Cost *($ M)*	Qty *(Each)*	Total Cost *($ M)*	Unit Cost *($ M)*	Qty *(Each)*	Total Cost *($ M)*	Unit Cost *($ M)*	Qty *(Each)*	Total Cost *($ M)*	Unit Cost *($ M)*	Qty *(Each)*	Total Cost *($ M)*	Unit Cost *($ M)*	Qty *(Each)*	Total Cost *($ M)*	Unit Cost *($ M)*	Qty *(Each)*	Total Cost *($ M)*
Space Vehicle - SV 7-8 Cost																		
Recurring Cost																		
SV 7-8 Satellites	-	-	-	-	-	-	-	-	0.000	-	-	-	-	-	-	-	-	-
Subtotal: Recurring Cost	-	-	-	-	-	-	-	-	*0.000*	-	-	-	-	-	-	-	-	-
Subtotal: Space Vehicle - SV 7-8 Cost	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	***0.000***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Gross/Weapon System Cost	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**0.000**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**

Remarks:
No FY 2019 funding requested for SBIRS Space Vehicles 7 and 8; effort being restructured

Exhibit P-5, Cost Analysis: PB 2019 Air Force		Date: February 2018
Appropriation / Budget Activity / Budget Sub Activity: 3021F / 01 / 1	P-1 Line Item Number / Title: MSSBIR / SBIR High (Space)	Item Number / Title [DODIC]: HEO 3-4
ID Code (A=Service Ready, B=Not Service Ready) : A	MDAP/MAIS Code:	

Resource Summary	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	10.361	20.547	7.499	-	-	-
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	10.361	20.547	7.499	-	-	-
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**10.361**	**20.547**	**7.499**	**-**	**-**	**-**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)						
Initial Spares *($ in Millions)*	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Millions)*	-	-	-	-	-	-

Note: Subtotals or Totals in this Exhibit P-5 may not be exact or sum exactly due to rounding.

Cost Elements	Prior Years			FY 2017			FY 2018			FY 2019 Base			FY 2019 OCO			FY 2019 Total		
	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)
Checkout and Launch - HEO 3-4 Cost																		
HEO Host Accommodation	-	-	1.021	-	-	2.468	-	-	-	-	-	-	-	-	-	-	-	-
HEO 3-4 Launch Ops & Checkout	-	-	9.340	-	-	18.079	-	-	7.499	-	-	-	-	-	-	-	-	-
Subtotal: Checkout and Launch - HEO 3-4 Cost	**-**	**-**	***10.361***	**-**	**-**	***20.547***	**-**	**-**	***7.499***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Gross/Weapon System Cost	**-**	**-**	**10.361**	**-**	**-**	**20.547**	**-**	**-**	**7.499**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**

Remarks:
Total HEO 3-4 3020/3021 funds are $1,146.672M.

Exhibit P-5, Cost Analysis: PB 2019 Air Force		Date: February 2018
Appropriation / Budget Activity / Budget Sub Activity: 3021F / 01 / 1	**P-1 Line Item Number / Title:** MSSBIR / SBIR High (Space)	**Item Number / Title [DODIC]:** SBIRS Survivable Endurable Evolution (S2E2)
ID Code (A=Service Ready, B=Not Service Ready) : A		**MDAP/MAIS Code:**

Resource Summary	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	82.514	-	-	-	-	-
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	82.514	-	-	-	-	-
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**82.514**	**-**	**-**	**-**	**-**	**-**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)						
Initial Spares *($ in Millions)*	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Millions)*	-	-	-	-	-	-

Note: Subtotals or Totals in this Exhibit P-5 may not be exact or sum exactly due to rounding.

Cost Elements	Prior Years			FY 2017			FY 2018			FY 2019 Base			FY 2019 OCO			FY 2019 Total		
	Unit Cost *($ M)*	Qty *(Each)*	Total Cost *($ M)*	Unit Cost *($ M)*	Qty *(Each)*	Total Cost *($ M)*	Unit Cost *($ M)*	Qty *(Each)*	Total Cost *($ M)*	Unit Cost *($ M)*	Qty *(Each)*	Total Cost *($ M)*	Unit Cost *($ M)*	Qty *(Each)*	Total Cost *($ M)*	Unit Cost *($ M)*	Qty *(Each)*	Total Cost *($ M)*
Hardware - SBIRS Survivable Endurable Evolution (S2E2) Cost																		
Recurring Cost																		
2.5 S2E2 SMGT(†)	25.000	2	50.000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Recurring Cost	-	-	*50.000*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Non Recurring Cost																		
2.4 S2E2 SMGT 1-3 DSP/GEO Stereo Capability Modification	6.000	3	18.000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2.6 S2E2 Integration	-	-	7.814	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Non Recurring Cost	-	-	*25.814*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Hardware - SBIRS Survivable Endurable Evolution (S2E2) Cost	**-**	**-**	***75.814***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Software - SBIRS Survivable Endurable Evolution (S2E2) Cost																		
Non Recurring Cost																		
2.1 S2E2 Software	6.700	1	6.700	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Non Recurring Cost	-	-	*6.700*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Software - SBIRS Survivable Endurable Evolution (S2E2) Cost	**-**	**-**	***6.700***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Gross/Weapon System Cost	**-**	**-**	**82.514**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**

Exhibit P-5, Cost Analysis: PB 2019 Air Force		Date: February 2018
Appropriation / Budget Activity / Budget Sub Activity: 3021F / 01 / 1	**P-1 Line Item Number / Title:** MSSBIR / SBIR High (Space)	**Item Number / Title [DODIC]:** SBIRS Survivable Endurable Evolution (S2E2)
ID Code (A=Service Ready, B=Not Service Ready) : A		**MDAP/MAIS Code:**

Remarks:

Note: Starting in FY 2016 funding has been re-categorized from Other Procurement (3080) to Space Procurement Air Force (SPAF/3021).

SBIRS Survivable Endurable Evolution (S2E2): SBIRS capable MGS require the interim deliverables over this period as described below.

S2E2 Software Non-Recurring:
-FY 2016 (Prior Year) - Provided training software for Standardized Space Trainer. (SPAF funded)

S2E2 Hardware Non-Recurring:
-FY 2016 (Prior Year) - Modified SMGTs 1-3 to add PDSS antennas and other hardware for full Stereo DSP/GEO capability; completes UGNT integration (SPAF funded)

S2E2 Hardware Recurring:
-FY 2015 (Prior Year) - Procured 1 fully tested and sustainable GEO SMGT with two PDSSs. Procures the System Test Environment (STE) for high fidelity Development, Testing & Evaluation (DT&E) and future sustainment.
-FY 2016 (Prior Year) - Procured 2 fully capable Stereo DSP/GEO SMGTs with two PDSSs each, as well as 9 additional PDSSs needed to field full, simultaneous DSP and SBIRS downlink capability for FOC. (SPAF funded)

Total S2E2 Funding for FY 2011-2016 = $238.8M
Quantity = 5

Gross Unit Cost = $47.8M

(†) indicates the presence of a P-5a

Exhibit P-5a, Procurement History and Planning: PB 2019 Air Force		Date: February 2018
Appropriation / Budget Activity / Budget Sub Activity: 3021F / 01 / 1	P-1 Line Item Number / Title: MSSBIR / SBIR High (Space)	Item Number / Title [DODIC]: SBIRS Survivable Endurable Evolution (S2E2)

Cost Elements	OCO	FY	Contractor and Location	Method/Type or Funding Vehicle	Location of PCO	Award Date	Date of First Delivery	Qty (Each)	Unit Cost ($ M)	Specs Avail Now?	Date Revision Available	RFP Issue Date
2.5 S2E2 SMGT		2016	Lockheed Martin Space Systems / Sunnyvale, CA	SS / CPIF	SMC, LA AFB, CA	Jan 2016	Jul 2020	2	25.000	Y		

Remarks:
Remarks:

SBIRS Survivable Endurable Evolution (S2E2):
-FY 2014 purchased GEO-capability upgrades to SMGTs 1 & 2 (delivery Sep 2018)
-FY 2015 purchased GEO-capable SMGT 3 (delivery Aug 2018) and associated PDSS antennas
-FY 2016 purchases GEO-capable SMGTs 4&5 (delivery Jan 2019 and Aug 2019) and modifies SMGTs 1-3 to full Stereo DSP/GEO capability and associated PDSS antennas (SPAF funded)

FY 2016 Unit Cost Calculations (SPAF funded):
$20M - Single SMGT cost based on contract option
$2.5M - Additional Parabolic Dish Sub-System (PDSS) Antenna
$2.5M - Spares
Total Unit Cost = $25.0M

Gross Unit Cost Calculation:
S2E2 unit costs above are not representative of overall S2E2 costs due to interim deliverables.

Exhibit P-3a, Individual Modification: PB 2019 Air Force		Date: February 2018
Appropriation / Budget Activity / Budget Sub Activity: 3021F / 01 / 1	**P-1 Line Item Number / Title:** MSSBIR / SBIR High (Space)	**Modification Number / Title:** 1 / SBIRS Mobile System & Fixed Comm Electronics Upgrades

ID Code (A=Service Ready, B=Not Service Ready) : B | **MDAP/MAIS Code:**

Resource Summary	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	To Complete	Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	7.676	7.541	7.693	8.427	0.000	8.427	8.550	8.026	8.188	8.340	-	64.441
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	7.676	7.541	7.693	8.427	0.000	8.427	8.550	8.026	8.188	8.340	-	64.441
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**7.676**	**7.541**	**7.693**	**8.427**	**0.000**	**8.427**	**8.550**	**8.026**	**8.188**	**8.340**	**-**	**64.441**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-

Description:

Note: Starting in FY 2016 funding has been re-categorized from Other Procurement (3080) to Space Procurement Air Force (SPAF/3021).

SBIRS MOBILE AND FIXED SITE COMMUNICATIONS/ELECTRONIC REPLACEMENT: This effort procures DSP and SBIRS assets to maintain the ground system equipment. Fixed site examples include, but are not limited to, legacy receiver, antenna drive system, Spacecraft Simulator RF, MCS display, Rapid Delog (instantaneous translation of computer data to a human-readable format), Sybase database obsolescence, communications and network routers, and switches and time server replacements. Mobile system examples include, but are not limited to, aging radio frequency communications equipment, aging antenna equipment, aging electrical equipment and cabling, and unsupportable data processing subsystem components. Funding also provides for Program Office and related support activities to include but not limited to, Systems Engineering and Technical Assistance (SETA) enterprise activities which provides intra-and inter-program office support. Funding for this effort is in program element 1203915F.

Milestone/Development Status

Program office has recurring DSP and SBIRS requirements that is planned and programmed on an annual basis to maintain the ground system equipment.

Exhibit P-3a, Individual Modification: PB 2019 Air Force		Date: February 2018
Appropriation / Budget Activity / Budget Sub Activity: 3021F / 01 / 1	**P-1 Line Item Number / Title:** MSSBIR / SBIR High (Space)	**Modification Number / Title:** 1 / SBIRS Mobile System & Fixed Comm Electronics Upgrades
ID Code (A=Service Ready, B=Not Service Ready) : B	**MDAP/MAIS Code:**	
Models of Systems Affected: SBIRS	**Modification Type:** Reliability & Maintainability	**Related RDT&E PEs:**

Financial Plan	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	To Complete	Total
	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*
Procurement												
Modification Item 1 of 1: SBIRS Mobiles Sys & Fixed Comm Elect Upgrades												
B Kits												
Recurring												
SBIRS Mobiles Sys & Fixed Comm Elect Upgrades:EQUIPMENT Group B (Active)	0 / 6.278	1 / 5.659	1 / 5.319	1 / 4.821	- / -	1 / 4.821	1 / 5.577	1 / 4.956	1 / 5.061	1 / 5.428	- / -	7 / 43.099
Subtotal: Recurring	*- / 6.278*	*- / 5.659*	*- / 5.319*	*- / 4.821*	*- / -*	*- / 4.821*	*- / 5.577*	*- / 4.956*	*- / 5.061*	*- / 5.428*	*- / -*	*- / 43.099*
Subtotal: SBIRS Mobiles Sys & Fixed Comm Elect Upgrades	*- / 6.278*	*- / 5.659*	*- / 5.319*	*- / 4.821*	*- / -*	*- / 4.821*	*- / 5.577*	*- / 4.956*	*- / 5.061*	*- / 5.428*	*- / -*	*- / 43.099*
Subtotal: Procurement, All Modification Items	*- / 6.278*	*- / 5.659*	*- / 5.319*	*- / 4.821*	*- / -*	*- / 4.821*	*- / 5.577*	*- / 4.956*	*- / 5.061*	*- / 5.428*	*- / -*	*- / 43.099*
Support *(All Modification Items)*												
OTHER GOVT	- / 0.000	- / 0.000	- / 0.308	- / 0.313	- / -	- / 0.313	- / 0.319	- / 0.325	- / 0.300	- / 0.000	- / -	- / 1.565
A&AS	- / 1.398	- / 1.882	- / 2.066	- / 3.293	- / -	- / 3.293	- / 2.654	- / 2.745	- / 2.827	- / 2.912	- / -	- / 19.777
Subtotal: Support	*- / 1.398*	*- / 1.882*	*- / 2.374*	*- / 3.606*	*- / -*	*- / 3.606*	*- / 2.973*	*- / 3.070*	*- / 3.127*	*- / 2.912*	*- / -*	*- / 21.342*
Installation												
Subtotal: Installation	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*
Total												
Total Cost (Procurement + Support + Installation)	**7.676**	**7.541**	**7.693**	**8.427**	**0.000**	**8.427**	**8.550**	**8.026**	**8.188**	**8.340**	**-**	**64.441**

Exhibit P-3a, Individual Modification: PB 2019 Air Force		Date: February 2018
Appropriation / Budget Activity / Budget Sub Activity: 3021F / 01 / 1	**P-1 Line Item Number / Title:** MSSBIR / SBIR High (Space)	**Modification Number / Title:** 1 / SBIRS Mobile System & Fixed Comm Electronics Upgrades

ID Code (A=Service Ready, B=Not Service Ready) : B	MDAP/MAIS Code:

Modification Item 1 of 1: SBIRS Mobiles Sys & Fixed Comm Elect Upgrades

Manufacturer Information

Manufacturer Name: Lockheed Martin Space Systems	Manufacturer Location: Colorado Springs, CO
Administrative Leadtime *(in Months)*: 8	Production Leadtime *(in Months)*: 12

Dates	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023
Contract Dates	Jun 2017	Jun 2018	Jun 2019	Jun 2020	Jun 2021	Jun 2022	Jun 2023
Delivery Dates	Jun 2018	Jun 2019	Jun 2020	Jun 2021	Jun 2022	Jun 2023	Jun 2024

Installation Information

Method of Implementation (Organic): Org/Intermediate	Installation Quantity: 7

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Exhibit P-40, Advance Procurement Budget Line Item Justification: PB 2019 Air Force	Date: February 2018
Appropriation / Budget Activity / Budget Sub Activity: 3021F: Space Procurement, Air Force / BA 01: Space Procurement, Air Force / BSA 1: Space Programs	**P-1 Line Item Number / Title:** MSSBIR / SBIR High (Space)
Program Elements for Code B Items: 0604441F	**Other Related Program Elements:** 1206441F
Line Item MDAP/MAIS Code: 210	

Resource Summary	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	To Complete	Total
Gross/Weapon System Cost *($ in Millions)*	-	0.000	132.420	0.000	-	0.000	0.000	0.000	0.000	0.000	-	132.420
Net Procurement (P-1) *($ in Millions)*	-	0.000	132.420	0.000	-	0.000	0.000	0.000	0.000	0.000	-	132.420
Total Obligation Authority *($ in Millions)*	**-**	**0.000**	**132.420**	**0.000**	**-**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**-**	**132.420**

Description:

Funding for this exhibit contained in PE 1203915F.

The Space Based Infrared System's (SBIRS) primary mission is to provide initial warning of a ballistic missile attack on the US, its deployed forces and its allies. SBIRS enhances detection and improves reporting of intercontinental ballistic missiles, submarine launched ballistic missiles, and tactical ballistic missiles. SBIRS provides increased detection and tracking performance in order to meet requirements in the Operational Requirements Document (ORD). SBIRS will consist of satellites in Geosynchronous Earth Orbit (GEO) and in Highly Elliptical Orbit (HEO) with an integrated, centralized ground station serving all SBIRS space elements, Defense Support Program (DSP) satellites and other program related support activities. The HEO payloads operate on a classified host.

No FY2019 funding requested for SBIRS Space Vehicles 7 and 8; effort being restructured.

Exhibit P-40, Advance Procurement Budget Line Item Justification: PB 2019 Air Force	Date: February 2018
Appropriation / Budget Activity / Budget Sub Activity: 3021F: Space Procurement, Air Force / BA 01: Space Procurement, Air Force / BSA 1: Space Programs	**P-1 Line Item Number / Title:** MSSBIR / SBIR High (Space)
Program Elements for Code B Items: 0604441F	**Other Related Program Elements:** 1206441F
Line Item MDAP/MAIS Code: 210	

Exhibits Schedule				Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Exhibit Type	Title*	ID CD	MDAP/ MAIS Code	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*
P-10	SV 7-8			- / -	- / -	- / 132.420	- / -	- / -	- / -
P-40	**Total Gross/Weapon System Cost**			**- / -**	**- / 0.000**	**- / 132.420**	**- / 0.000**	**- / -**	**- / 0.000**

Exhibits Schedule				FY 2020	FY 2021	FY 2022	FY 2023	To Complete	Total
Exhibit Type	Title*	ID CD	MDAP/ MAIS Code	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*
P-10	SV 7-8			- / -	- / -	- / -	- / -	- / -	- / -
P-40	**Total Gross/Weapon System Cost**			**- / 0.000**	**- / 0.000**	**- / 0.000**	**- / 0.000**	**- / -**	**- / 132.420**

*Title represents the P-10 Title for Advance Procurement.

Note: Totals in this Exhibit P-40 set may not be exact or sum exactly due to rounding.

Justification:
No FY2019 funding requested for SBIRS Space Vehicles 7 and 8; effort being restructured.

Exhibit P-10, Advance Procurement Requirements Analysis (*page 1 - Budget Funding Justification*): PB 2019 Air Force		Date: February 2018
Appropriation / Budget Activity / Budget Sub Activity: 3021F / 01 / 1	**P-1 Line Item Number / Title:** MSSBIR / SBIR High (Space)	**P-5 Number / Title:** SV 7-8

First System (2019) Award Date:	First System (2019) Completion Date:	Interval Between Systems:
August 2018	April 2025	9 Months

SV 7-8	Production Leadtime *(Months)*	Prior Years *(Each)*	FY 2017 *(Each)*	FY 2018 *(Each)*	FY 2019 *(Each)*	FY 2020 *(Each)*	FY 2021 *(Each)*	FY 2022 *(Each)*	FY 2023 *(Each)*	To Complete *(Each)*	Total *(Each)*
Quantity	12	-	-	-	-	-	-	-	-	-	-

Cost Elements	When Required *(Months)*	Prior Years *($ M)*	FY 2017 *($ M)*	FY 2018 *($ M)*	FY 2019 *($ M)*	FY 2020 *($ M)*	FY 2021 *($ M)*	FY 2022 *($ M)*	FY 2023 *($ M)*	To Complete *($ M)*	Total *($ M)*
Other											
SV 7-8 Satellites: SV 7-8 Long Lead	12	-	-	132.420	-	-	-	-	-	-	-
Total: Other		-	-	*132.420*	-	-	-	-	-	-	-
Total Advance Procurement/Obligation Authority		**-**	**-**	**132.420**	**-**	**-**	**-**	**-**	**-**	**-**	**-**

Exhibit P-10, Advance Procurement Requirements Analysis (*page 2 - Budget Funding Justification*): PB 2019 Air Force		Date: February 2018
Appropriation / Budget Activity / Budget Sub Activity: 3021F / 01 / 1	**P-1 Line Item Number / Title:** MSSBIR / SBIR High (Space)	**P-5 Number / Title:** SV 7-8

Cost Elements	QPA *(Each)*	FY 2019					Total Cost Request *($ M)*
		Production Leadtime *(Months)*	Unit Cost *($ M)*	Contract Forecast Date	2019 Qty *(Each)*	For FY	
Other							
SV 7-8 Satellites: SV 7-8 Long Lead	-						-
Total: Other							-
Total Advance Procurement/Obligation Authority							**-**

Description:
No FY 2019 funding requested for SBIRS Space Vehicles 7 and 8; effort being restructured

Exhibit P-40, Budget Line Item Justification: PB 2019 Air Force	Date: February 2018
Appropriation / Budget Activity / Budget Sub Activity: 3021F: Space Procurement, Air Force / BA 01: Space Procurement, Air Force / BSA 1: Space Programs	**P-1 Line Item Number / Title:** NUDETS / NUDET Detection System

ID Code (A=Service Ready, B=Not Service Ready): A	Program Elements for Code B Items: N/A	Other Related Program Elements: 1203913F
Line Item MDAP/MAIS Code: N/A		

Resource Summary	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	To Complete	Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	-	4.395	6.370	7.705	0.000	7.705	6.532	6.645	6.780	6.907	-	45.334
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	-	4.395	6.370	7.705	0.000	7.705	6.532	6.645	6.780	6.907	-	45.334
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**-**	**4.395**	**6.370**	**7.705**	**0.000**	**7.705**	**6.532**	**6.645**	**6.780**	**6.907**	**-**	**45.334**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Flyaway Unit Cost *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-

Description:

The United States Nuclear Detonation (NUDET) Detection System (USNDS) provides a near real-time worldwide, highly survivable/endurable capability to detect, locate, and report any nuclear detonations in the atmosphere of the earth or in near space. The USNDS Operational Requirements Document (ORD), dated 21 Jan 2004, documents the requirements for space-based NUDET detection. Space-based NUDET detection is also mandated by Public Law 110-181, dated 28 Jan 2008, which directs the Secretary of Defense (SECDEF) to maintain the capability for space-based nuclear detection at or above 2008 capability levels. USNDS supports NUDET detection requirements across five mission areas: Integrated Tactical Warning and Attack Assessment (ITW/AA), Nuclear Force Management (NFM), Space Control (SC), Treaty Monitoring (TM) and a classified mission.

The USNDS 6 program is jointly sponsored and funded by the Department of Defense (DoD), through the U.S. Air Force (AF), and the Department of Energy (DOE), through the National Nuclear Security Administration (NNSA) and its Nuclear Detonation Detection (NA-22) office, respectively. NNSA/NA-22 supplies USNDS space sensors as Government Furnished Equipment (GFE) to the AF USNDS Program Office, which is responsible for all acquisition and systems engineering, integration and test (SEIT) activities on space vehicles (SVs), to include Global Positioning System (GPS) and additional hosts, and their supporting ground control segments. The AF directly funds the procurement of the USNDS 6 ground segment (described below).

DoD funds its contribution to the Nuclear Detonation (NUDET) Detection System (NDS) program in Program Element (PE) 1203913F with RDT&E, SPAF, and O&M dollars. NDS payload integration onto GPS satellites is funded in the GPS III Space Segment PE 1203265F for GPS III SVs. NDS payload integration onto Geosynchronous Earth Orbit (GEO) satellites is funded by NNSA/NA-22.

USNDS consists of space sensors and complex ground segments. The space segment sensors, funded by DOE, consists of three nuclear detection sensor payloads: the Radiation Detection Capability (RADEC) payload for Defense Support Program (DSP) satellites, the Global Burst Detection (GBD) payload for Medium Earth Orbit (MEO) platforms (GPS satellites), and the Space Atmospheric Burst Reporting System (SABRS) payload for GEO platforms (classified GEO hosts). Together, these sensors and associated communications capability provided by the host satellites comprise the global NUDET space segment detection capability for the USNDS. Space sensors communicate NUDET indications to the fixed ground segment (the RADEC Data Processor (RDP), the Integrated Correlation and Display System (ICADS)) and the deployable mobile ground segment (survivable Ground NDS Terminals (GNTs), and the five survivable/endurable Universal Ground NDS Terminals (UGNTs), when fielded. The ground segment provides ground receiving analysis and reporting capabilities to national authorities, commands, and forward users as well as Department of State for the Treaty Monitoring and Verification mission.

The ground control segment is being modernized and continuously improved through an incremental evolutionary acquisition approach.

Exhibit P-40, Budget Line Item Justification: PB 2019 Air Force		Date: February 2018
Appropriation / Budget Activity / Budget Sub Activity: 3021F: Space Procurement, Air Force / BA 01: Space Procurement, Air Force / BSA 1: Space Programs	**P-1 Line Item Number / Title:** NUDETS / NUDET Detection System	
ID Code (A=Service Ready, B=Not Service Ready): A	**Program Elements for Code B Items:** N/A	**Other Related Program Elements:** 1203913F
Line Item MDAP/MAIS Code: N/A		

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."

Funding for this exhibit contained in PE 1203913F, NUDET Detection System (SPACE).

Exhibit P-40, Budget Line Item Justification: PB 2019 Air Force		Date: February 2018
Appropriation / Budget Activity / Budget Sub Activity: 3021F: Space Procurement, Air Force / BA 01: Space Procurement, Air Force / BSA 1: Space Programs	**P-1 Line Item Number / Title:** NUDETS / NUDET Detection System	
ID Code (A=Service Ready, B=Not Service Ready): A	**Program Elements for Code B Items:** N/A	**Other Related Program Elements:** 1203913F
Line Item MDAP/MAIS Code: N/A		

Exhibits Schedule					Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/ MAIS Code	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*
P-5	NUDET Detection System		A		- / -	- / 4.395	- / 6.370	- / 7.705	- / 0.000	- / 7.705
P-40	**Total Gross/Weapon System Cost**				**- / -**	**- / 4.395**	**- / 6.370**	**- / 7.705**	**- / 0.000**	**- / 7.705**

*Title represents 1) the Number / Title for Items; 2) the Number / Title [DODIC] for Ammunition; and/or 3) the Number / Title (Modification Type) for Modifications.

Note: Totals in this Exhibit P-40 set may not be exact or sum exactly due to rounding.

Justification:
GROUND NUCLEAR DETONATION DETECTION TERMINALS UPGRADES/SENSOR CHECKOUT ACTIVITIES : FY2019 funding includes but is not limited to; purchases USNDS6 equipment, integration and testing for the hardened shelters, on-orbit sensor testing and system engineering for USNDS GPS payload, Red Hat Linux upgrade, and simulator modification for ICADS Build 6 ground system. Rapidly respond to implement system resiliency and situational awareness necessary to operate in the contested space domain. Activities may include, but are not limited to program office support, studies, technical analysis, prototyping, etc.

Exhibit P-5, Cost Analysis: PB 2019 Air Force		Date: February 2018
Appropriation / Budget Activity / Budget Sub Activity: 3021F / 01 / 1	**P-1 Line Item Number / Title:** NUDETS / NUDET Detection System	**Item Number / Title [DODIC]:** NUDET Detection System
ID Code (A=Service Ready, B=Not Service Ready) : A	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	-	4.395	6.370	7.705	0.000	7.705
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	-	4.395	6.370	7.705	0.000	7.705
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**-**	**4.395**	**6.370**	**7.705**	**0.000**	**7.705**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)						
Initial Spares *($ in Millions)*	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Millions)*	-	-	-	-	-	-

Note: Subtotals or Totals in this Exhibit P-5 may not be exact or sum exactly due to rounding.

Cost Elements	Prior Years			FY 2017			FY 2018			FY 2019 Base			FY 2019 OCO			FY 2019 Total		
	Unit Cost *($ M)*	Qty *(Each)*	Total Cost *($ M)*	Unit Cost *($ M)*	Qty *(Each)*	Total Cost *($ M)*	Unit Cost *($ M)*	Qty *(Each)*	Total Cost *($ M)*	Unit Cost *($ M)*	Qty *(Each)*	Total Cost *($ M)*	Unit Cost *($ M)*	Qty *(Each)*	Total Cost *($ M)*	Unit Cost *($ M)*	Qty *(Each)*	Total Cost *($ M)*
Hardware - Hardware End Item Cost																		
Recurring Cost																		
ADP + Spares	-	-	-	1.773	2	3.546	1.714	3	5.142	1.719	3	5.156	-	-	-	1.719	3	5.156
Sensor Checkout Activities	-	-	-	0.849	1	0.849	1.228	1	1.228	1.249	1	1.249	-	-	-	1.249	1	1.249
Red Hat Linux Upgrades	-	-	-	-	-	-	-	-	-	1.300	1	1.300	-	-	-	1.300	1	1.300
Subtotal: Recurring Cost	-	-	-	-	-	*4.395*	-	-	*6.370*	-	-	*7.705*	-	-	-	-	-	*7.705*
Subtotal: Hardware - Hardware End Item Cost	**-**	**-**	**-**	**-**	**-**	***4.395***	**-**	**-**	***6.370***	**-**	**-**	***7.705***	**-**	**-**	**-**	**-**	**-**	***7.705***
Gross/Weapon System Cost	**-**	**-**	**-**	**-**	**-**	**4.395**	**-**	**-**	**6.370**	**-**	**-**	**7.705**	**-**	**-**	**0.000**	**-**	**-**	**7.705**

Remarks:

(1) Quantity/unit cost data represents the average unit cost per system installation. Due to cost variances between local configurations, unit cost data will fluctuate between fiscal years.

Exhibit P-40, Budget Line Item Justification: PB 2019 Air Force	Date: February 2018
Appropriation / Budget Activity / Budget Sub Activity: 3021F: Space Procurement, Air Force / BA 01: Space Procurement, Air Force / BSA 1: Space Programs	**P-1 Line Item Number / Title:** RSLP00 / Rocket Systems Launch Program

ID Code (A=Service Ready, B=Not Service Ready): A	Program Elements for Code B Items: N/A	Other Related Program Elements: 1206860F

Line Item MDAP/MAIS Code: N/A

Resource Summary	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	To Complete	Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	-	0.000	0.000	47.609	0.000	47.609	11.473	57.862	12.115	63.444	-	192.503
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	-	0.000	0.000	47.609	0.000	47.609	11.473	57.862	12.115	63.444	-	192.503
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**-**	**0.000**	**0.000**	**47.609**	**0.000**	**47.609**	**11.473**	**57.862**	**12.115**	**63.444**	**-**	**192.503**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Flyaway Unit Cost *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-

Description:

The Rocket Systems Launch Program (RSLP) acquires small launch services to deliver affordable, flexible spacelift for small payloads. The small launch program complements the Evolved Expendable Launch Vehicle (EELV) program with multiple options to acquire dedicated spacelift and rideshare services for developmental, demonstration, and small operational space vehicles. The Spacelift Capability Production Document approved 31 May 2016 supports the requirement for small spacelift capability (0-8,000 lbs to low Earth through geostationary transfer orbit).

In Fiscal Year 2019, the Air Force is establishing this procurement line to satisfy the small launch procurement requirements. Previously, small launch funding resided in the satellite program budgets. This change aligns launch service procurement activities with the necessary funding under SMC's Launch Enterprise. This approach is now consistent across Air Force procured launch services and allows the Air Force the flexibility to manage dynamic manifest requirements as new launch service providers emerge.

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 does not require and does not include advance procurement or initial spares. Flyaway Unit Cost is not applicable and Weapon System Unit Cost are not representative due to the mix of vehicles in the program. RSLP procures launch services and is not a weapon system. The program provides launch capacity for the Government National Launch Forecast (NLF) requirements, but does not take ownership of any specific launch vehicle. The requirements for small launch services are derived from multiple spacecraft requirements.

Funding for this exhibit is contained in PE 1206860F.

Exhibit P-40, Budget Line Item Justification: PB 2019 Air Force	Date: February 2018
Appropriation / Budget Activity / Budget Sub Activity: 3021F: Space Procurement, Air Force / BA 01: Space Procurement, Air Force / BSA 1: Space Programs	**P-1 Line Item Number / Title:** RSLP00 / Rocket Systems Launch Program

ID Code (A=Service Ready, B=Not Service Ready): A	Program Elements for Code B Items: N/A	Other Related Program Elements: 1206860F

Line Item MDAP/MAIS Code: N/A

Exhibits Schedule					Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/ MAIS Code	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*
P-40a	Rocket Systems Launch Program				- / -	- / 0.000	- / 0.000	- / 47.609	- / 0.000	- / 47.609
P-40	**Total Gross/Weapon System Cost**				**- / -**	**- / 0.000**	**- / 0.000**	**- / 47.609**	**- / 0.000**	**- / 47.609**

*Title represents 1) the Number / Title for Items; 2) the Number / Title [DODIC] for Ammunition; and/or 3) the Number / Title (Modification Type) for Modifications. Title represents the P-40a Title when only the P-40a Summary/Total is shown.

Note: Totals in this Exhibit P-40 set may not be exact or sum exactly due to rounding.

Justification:
This program, Item Small Launch Service, is a new start.

Fiscal Year 2019 RSLP procurement funding acquires small launch and rideshare services to satisfy Department of Defense (DoD) warfighter, national security, and other Government spacelift missions. Launch services include, but are not limited to, launch vehicle manufacturing, mission success incentives, recurring costs for Orbital Debris Mitigation Standard Practice, secondary payload adapter/rideshare hardware, rideshare services, launch propellants, launch system refurbishment, mission specific design modifications, flightworthiness testing, do-no-harm analysis, independent mission assurance, early integration activities and analysis/support, and any other related studies to support mission requirements. RSLP procurement includes program office support and other related support activities that may include, but are not limited to cybersecurity, program management, financial management, systems engineering, FFRDC, studies, technical analysis, etc..

Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2019 Air Force		Date: February 2018
Appropriation / Budget Activity / Budget Sub Activity: 3021F / 01 / 1	**P-1 Line Item Number / Title:** RSLP00 / Rocket Systems Launch Program	**Aggregated Items Title:** Rocket Systems Launch Program

Item Number / Title [DODIC]	ID CD	MDAP/ MAIS Code	Prior Years			FY 2017			FY 2018			FY 2019 Base			FY 2019 OCO			FY 2019 Total		
			Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)
Small Launch Service																				
Small Launch Service	A		-	-	-	-	-	0.000	-	-	0.000	47.609	1	47.609	-	-	0.000	47.609	1	47.609
Subtotal: Small Launch Service			**-**	**-**	**-**	**-**	**-**	***0.000***	**-**	**-**	***0.000***	**-**	**-**	***47.609***	**-**	**-**	***0.000***	**-**	**-**	***47.609***
Total			**-**	**-**	**-**	**-**	**-**	**0.000**	**-**	**-**	**0.000**	**-**	**-**	**47.609**	**-**	**-**	**0.000**	**-**	**-**	**47.609**

Note: Subtotals or Totals in this Exhibit P-40a may not be exact or sum exactly, due to rounding.

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Exhibit P-40, Budget Line Item Justification: PB 2019 Air Force	Date: February 2018
Appropriation / Budget Activity / Budget Sub Activity: 3021F: Space Procurement, Air Force / BA 01: Space Procurement, Air Force / BSA 1: Space Programs	**P-1 Line Item Number / Title:** SPCFNC / space fence

ID Code (A=Service Ready, B=Not Service Ready): A	Program Elements for Code B Items: N/A	Other Related Program Elements: 0604426F
Line Item MDAP/MAIS Code: N/A		

Resource Summary	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	To Complete	Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	-	0.000	0.000	51.361	0.000	51.361	55.760	0.000	0.000	0.000	-	107.121
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	-	0.000	0.000	51.361	0.000	51.361	55.760	0.000	0.000	0.000	-	107.121
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**-**	**0.000**	**0.000**	**51.361**	**0.000**	**51.361**	**55.760**	**0.000**	**0.000**	**0.000**	**-**	**107.121**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Flyaway Unit Cost *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-

Description:

The Space Fence effort is a system of ground-based sensors that improves upon the former Air Force Space Surveillance System (AFSSS), a Very High Frequency (VHF) radar operational from 1961 to 2013. The Space Fence will provide a more accurate and timely detection capability of smaller orbiting objects, primarily in low-earth orbit (LEO). The system will use higher frequency S-band radars at globally dispersed sites. As a result, it will greatly expand the uncued detection and tracking capacity of the Space Surveillance Network, from around 20,000 to up to 100,000+ objects, while working in concert with other network sensors. Space Fence will be delivered in FY2019.

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."

Funding for this exhibit is contained in PE 1206426F.

Exhibit P-40, Budget Line Item Justification: PB 2019 Air Force	Date: February 2018
Appropriation / Budget Activity / Budget Sub Activity: 3021F: Space Procurement, Air Force / BA 01: Space Procurement, Air Force / BSA 1: Space Programs	**P-1 Line Item Number / Title:** SPCFNC / space fence

ID Code (A=Service Ready, B=Not Service Ready): A	Program Elements for Code B Items: N/A	Other Related Program Elements: 0604426F

Line Item MDAP/MAIS Code: N/A

Exhibits Schedule					Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/ MAIS Code	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*
P-5	space fence		A		- / -	- / 0.000	- / 0.000	- / 51.361	- / 0.000	- / 51.361
P-40	**Total Gross/Weapon System Cost**				**- / -**	**- / 0.000**	**- / 0.000**	**- / 51.361**	**- / 0.000**	**- / 51.361**

*Title represents 1) the Number / Title for Items; 2) the Number / Title [DODIC] for Ammunition; and/or 3) the Number / Title (Modification Type) for Modifications.

Note: Totals in this Exhibit P-40 set may not be exact or sum exactly due to rounding.

Justification:
This program is a new start.

Funding in FY19 is required for interim contractor support (ICS), energy costs, Space Fence Operation Center (SOC) operators, and diminishing manufacturing sources (DMS). In addition, begin program office support for rapid response to implement system resiliency and situational awareness necessary to operate in the contested space domain. Such activities may include, but are not limited to studies, technical analysis, prototyping, etc.

Exhibit P-5, Cost Analysis: PB 2019 Air Force		Date: February 2018
Appropriation / Budget Activity / Budget Sub Activity: 3021F / 01 / 1	P-1 Line Item Number / Title: SPCFNC / space fence	Item Number / Title [DODIC]: space fence
ID Code (A=Service Ready, B=Not Service Ready) : A	MDAP/MAIS Code:	

Resource Summary	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	-	0.000	0.000	51.361	0.000	51.361
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	-	0.000	0.000	51.361	0.000	51.361
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**-**	**0.000**	**0.000**	**51.361**	**0.000**	**51.361**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)						
Initial Spares *($ in Millions)*	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Millions)*	-	-	-	-	-	-

Note: Subtotals or Totals in this Exhibit P-5 may not be exact or sum exactly due to rounding.

Cost Elements	Prior Years			FY 2017			FY 2018			FY 2019 Base			FY 2019 OCO			FY 2019 Total		
	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)
Logistics - Space Fence Cost																		
Recurring Cost																		
Interim Contractor Support	-	-	-	-	-	0.000	-	-	0.000	-	-	36.048	-	-	0.000	-	-	36.048
Energy	-	-	-	-	-	-	-	-	-	-	-	11.630	-	-	-	-	-	11.630
Subtotal: Recurring Cost	-	-	-	-	-	*0.000*	-	-	*0.000*	-	-	*47.678*	-	-	*0.000*	-	-	*47.678*
Subtotal: Logistics - Space Fence Cost	**-**	**-**	**-**	**-**	**-**	***0.000***	**-**	**-**	***0.000***	**-**	**-**	***47.678***	**-**	**-**	***0.000***	**-**	**-**	***47.678***
Support - Space Fence Cost																		
FFRDC	-	-	-	-	-	-	-	-	-	-	-	0.910	-	-	-	-	-	0.910
A&AS	-	-	-	-	-	-	-	-	-	-	-	2.773	-	-	-	-	-	2.773
Subtotal: Support - Space Fence Cost	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	***3.683***	**-**	**-**	**-**	**-**	**-**	***3.683***
Gross/Weapon System Cost	**-**	**-**	**-**	**-**	**-**	**0.000**	**-**	**-**	**0.000**	**-**	**-**	**51.361**	**-**	**-**	**0.000**	**-**	**-**	**51.361**

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Exhibit P-40, Budget Line Item Justification: PB 2019 Air Force	Date: February 2018
Appropriation / Budget Activity / Budget Sub Activity: 3021F: Space Procurement, Air Force / BA 01: Space Procurement, Air Force / BSA 1: Space Programs	**P-1 Line Item Number / Title:** SPCMOD / Space Mods

ID Code (A=Service Ready, B=Not Service Ready): A	Program Elements for Code B Items: 1203165F, 1203699F	Other Related Program Elements: 0305614F
Line Item MDAP/MAIS Code: 166		

Resource Summary	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	To Complete	Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	13.136	8.975	37.203	148.065	0.000	148.065	108.010	97.041	85.061	62.325	-	559.816
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	13.136	8.975	37.203	148.065	0.000	148.065	108.010	97.041	85.061	62.325	-	559.816
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**13.136**	**8.975**	**37.203**	**148.065**	**0.000**	**148.065**	**108.010**	**97.041**	**85.061**	**62.325**	**-**	**559.816**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Flyaway Unit Cost *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-

Description:

Space Mods Space enables the development of advanced Command and Control (C2) Battle Management, Intelligence Surveillance and Reconnaissance (ISR), and Command, Control, Communications, Computers, and Intelligence (C4I) systems to conduct effective predictive battle space awareness, facilitate precision attack, and compress the sensor-to-shooter kill chain. Permanent modifications are configuration changes to in-service systems and equipment that correct materiel or other deficiencies, or that add or delete capability. Safety modifications correct deficiencies that produce hazards to personnel, systems, or equipment. This budget line covers both new and on-going modification efforts for space equipment and systems. Modification installation funding is budgeted in the year the installation occurs.

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 effective. This agility 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."

Space Mods Space enables the development of advanced Command and Control (C2) Battle Management, Intelligence Surveillance and Reconnaissance (ISR), and Command, Control, Communications, Computers, and Intelligence (C4I) systems to conduct effective predictive battle space awareness, facilitate precision attack, and compress the sensor-to-shooter kill chain. Permanent modifications are configuration changes to in-service systems and equipment that correct materiel or other deficiencies, or that add or delete capability. Safety modifications correct deficiencies that produce hazards to personnel, systems, or equipment. This budget line covers both new and on-going modification efforts for space equipment and systems. Modification installation funding is budgeted in the year the installation occurs.

PE 1203160F Defense Meteorological Satellite Program (SPACE) - P-40A
PE 0305160F DEF METEOROLOGICAL SAT PROG (SPACE)

The DEFENSE METEOROLOGICAL SATELLITE PROGRAM (DMSP) is a fully operational program supporting a broad range of national security users who require timely and accurate global weather information. DMSP is DoD only assured source of global weather data providing visible and infrared cloud cover imagery (1/3 nautical miles (nm) constant resolution) and other meteorological, oceanographic, land surface, and space environmental data. DMSP satellites are flown in sun-synchronous, 450nm polar-orbits to meet mission requirements (sun-synchronous means the satellites cross the equator at the same local sun time on each of their 14 orbits/day).

Exhibit P-40, Budget Line Item Justification: PB 2019 Air Force		Date: February 2018
Appropriation / Budget Activity / Budget Sub Activity: 3021F: Space Procurement, Air Force / BA 01: Space Procurement, Air Force / BSA 1: Space Programs	P-1 Line Item Number / Title: SPCMOD / Space Mods	
ID Code (A=Service Ready, B=Not Service Ready): A	Program Elements for Code B Items: 1203165F, 1203699F	Other Related Program Elements: 0305614F
Line Item MDAP/MAIS Code: 166		

Key elements of the DMSP constellation command and control (C2) ground system have not been re-capitalized since the equipment was transferred to the National Oceanic and Atmospheric Administration Office of Satellite Operations in 1998. Critical C2 component spares have been depleted and parts cannibalization is no longer sustainable. Therefore, DMSP re-established an OPAF (now SPAF) funding line beginning in FY15 to enable continued C2 ground segment sustainment through a selective re-capitalization effort. C2 subsystems to be addressed include but are not limited to the Telemetry and Commanding System, Mission Planning and Scheduling System, and communications tracking station interface units. This selective re-capitalization effort is intended to ensure the DMSP C2 system remains viable through the planned DMSP mission fly-out no later than 2027.

PE 1203614F JSpOC Mission System - P-40A
PE 0305614F JSPOC MISSION SYSTEM

JOINT SPACE OPERATIONS CENTER (JSpOC) Mission System (JMS) provides integrated space situational awareness information and C2 of space forces for the Joint Functional Component Commander for Space (JFCC-SPACE). It will allow JFCC-SPACE to plan, direct, coordinate, and control operations of assigned forces. The JMS provides a net-centric, Services Oriented Architecture (SOA) along with space mission applications to meet the needs above. It implements a Space User Defined Operational Picture (UDOP) to provide the capability to create, visualize, and share decision-relevant views of space operational environment at all echelons.

PE 1203873F Ballistic Missile Defense Radars - P-40A

COBRA DANE is the most powerful, sensitive, and accurate Ground-based Midcourse Defense (GMD) radar and the premiere Ballistic Missile Defense (BMD) radar. At the same time it is the most accurate and capable phased array available to the Space Surveillance Network (SSN) for cataloging hazardous and difficult-to-track satellites and space debris objects that clutter the near-earth orbital regime that cannot be detected by most other SSN tracking assets. (U) COBRA DANE's primary mission is to support US Strategic Command's (USSTRATCOM) Ballistic Missile Defense mission by providing midcourse coverage for the Ballistic Missile Defense System (BMDS). COBRA DANE detects Intercontinental Ballistic Missiles (ICBMs) and Sea-Launched Ballistic Missiles (SLBMs), classifies reentry vehicles (RVs) and other missile objects, provides real-time information to the Ground-based Midcourse Defense (GMD) Fire Control (GFC), and provides tracking of threat ballistic missiles with sufficient accuracy to commit the launch of interceptors and to update the target tracks to the interceptor while the interceptor is in flight. (U) COBRA DANE's corollary mission is to support USSTRATCOM's Space Situational Awareness (SSA) mission by detecting, tracking, correlating, and characterizing man-made resident space objects, primarily in the Low-Earth Orbit (LEO) regime, including space debris and early observation of New Foreign Launches (NFL's). It operates as part of the larger Space Surveillance Network (SSN) and provides metric observation data to its command and control nodes: the Joint Space Operations Center (JSpOC) and the Distributed Space Command and Control - Dahlgren (DSC2-D (U) COBRA DANE also supports USSTRATCOM's Space Object Identification (SOI) mission by providing narrowband radar data of man-made resident space objects in the LEO regime. SOI information is used to ascertain the mission and operational status of various payloads and aids in forecasting maneuvers or deorbits. Cobra Dane mission equipment and associated sustainment suites consist of a mix of unique, custom-built components that are increasingly difficult to maintain on a 40 year old radar due to non-availability of replacement parts. Subsystems are no longer supported by the original equipment manufacturers. In addition, transmitter groups, Traveling Wave Tubes, Time Delay units and all associated components and spares requires replacement. Due to the limited spares demand rates, and indefinite system lifespan, Life of Type buys may be required to support this weapon system. Without these replacements there is a high risk that equipment failures will cause unacceptable mission downtime.

PE 1203909F Ballistic Missile Early Warning System (BMEWS) - P-40A

The BALLISTIC MISSILE EARLY WARNING SYSTEM (BMEWS) and the PAVE PHASED ARRAY WARNING SYSTEM (PAVE PAWS) are ground based radar systems with missions to support the Missile Correlation, Space Surveillance, and Missile Defense Centers. The radar systems provide United States Strategic Command (USSTRATCOM) with credible Integrated Tactical Warning/Attack Assessment (ITW/AA) data on all Sea-Launched Ballistic Missiles (SLBMs) and Inter-Continental Ballistic Missiles (ICBMs) penetrating the coverage area including Launch and Predicted Impact (L&PI) data for attack assessment and response determination. The radar systems also supports the Space Situational Awareness (SSA) network providing near-earth satellite surveillance and tracking, reporting observational (metric), SOI on man-made satellites and maintenance of the space catalog as required by the Joint Space Operations Center, Alternate Space Operations Center, and the National Air and Space Intelligence Center mitigating the significantly increasing potential for collisions with national assets, including manned space platforms. The Upgraded Early Warning Radar (UEWR) site at Beale AFB also has a Missile Defense (MD) mission supporting the Missile Defense Agency. The BMEWS and PAVE PAWS shares a common baseline and mission with the difference that BMEWS deploys more array elements on its radar faces. BMEWS radars are located at Thule Air Base, Greenland; Clear Air Force Station, AK; and Royal Air Force (RAF) Fylingdales, UK. PAVE PAWS radars are located at Beale AFB, CA and Cape Cod AFS, MA. Additionally there is a site for testing (System Program Agency) located in the Centralized Integration Support Facility (CISF) at Peterson AFB, CO. The BMEWS and PAVE PAWS mission equipment and

Exhibit P-40, Budget Line Item Justification: PB 2019 Air Force		Date: February 2018
Appropriation / Budget Activity / Budget Sub Activity: 3021F: Space Procurement, Air Force / BA 01: Space Procurement, Air Force / BSA 1: Space Programs	P-1 Line Item Number / Title: SPCMOD / Space Mods	
ID Code (A=Service Ready, B=Not Service Ready): A	Program Elements for Code B Items: 1203165F, 1203699F	Other Related Program Elements: 0305614F
Line Item MDAP/MAIS Code: 166		

associated sustainment suites consist of a mix of unique, custom-built components that are increasingly more difficult to maintain due to availability of replacement parts and obsolete COTS based subsystems that are no longer supported by the original equipment manufacturers. In addition, radar transmit & receive components, processing equipment, and power distribution elements, and other radar front-end equipment are 30+ years old, highly inefficient, and require replacement. Without these replacements there is a high risk that equipment failures will cause unacceptable mission downtime in order to troubleshoot and repair.

PE 1203160F DEF METEOROLOGICAL SAT PROG (SPACE)

The DEFENSE METEOROLOGICAL SATELLITE PROGRAM (DMSP) is a fully operational program supporting a broad range of national security users who require timely and accurate global weather information. DMSP is DoD only assured source of global weather data providing visible and infrared cloud cover imagery (1/3 nautical miles (nm) constant resolution) and other meteorological, oceanographic, land surface, and space environmental data. DMSP satellites are flown in sun-synchronous, 450nm polar-orbits to meet mission requirements (sun-synchronous means the satellites cross the equator at the same local sun time on each of their 14 orbits/day).

Key elements of the DMSP Command, Control, and Communication Ground System (DC3GS) have not been recapitalized since the equipment was transferred to the National Oceanic and Atmospheric Administration Office of Satellite Operations in 1998. Critical DC3GS component spares have been depleted, parts cannibalized, and are no longer sustainable. Therefore, DMSP re-established an OPAF (now SPAF) funding line beginning in FY15 to enable continued DC3GS sustainment through a selective re-capitalization effort. DC3GS subsystems to be addressed include, but are not limited to the Link/2 Communication System, and Mission Planning and Scheduling System. This selective re-capitalization effort is intended to ensure the DC3GS remains viable through the planned DMSP mission fly-out no later than 2027.

PE 1203165F NAVSTAR GPS (SPACE AND CONTROL SEGMENTS)

NAVSTAR GLOBAL POSITIONING SYSTEM (GPS) provides highly accurate time and three dimensional position and velocity information to an unlimited number of users anywhere on or above the surface of the earth, in any weather. This system supplies highly accurate position, velocity, timing, and Nuclear Detonation (NUDET) Detection System (NDS) information to properly equipped air, land, sea, and space-based users worldwide. The GPS system consists of three segments: space, control, and user equipment. The Operational Control System (OCS) is part of the control segment and requires modifications to replace high failure rate parts and preclude system operational degradation. Without these mods, aging and obsolete equipment will excessively degrade, ultimately resulting in system failure. System failure or even partial system failure will cause a loss of operational availability and the transmission of inaccurate navigation data to worldwide users, resulting in potential loss of life and/or operational equipment, including multi-million dollar satellites. OCS is required to operate until the Next Generation Operational Control System (OCX) transitions to operations, to include support for GPS III and fielding of Modernized GPS User Equipment (MGUE).

PE 1203614F JSPOC MISSION SYSTEM

JOINT SPACE OPERATIONS CENTER (JSpOC) Mission System (JMS) provides integrated space situational awareness information and C2 of space forces for the Joint Functional Component Commander for Space (JFCC-SPACE). It will allow JFCC-SPACE to plan, direct, coordinate, and control operations of assigned forces. The JMS provides a net-centric, Services Oriented Architecture (SOA) along with space mission applications to meet the needs above. It implements a Space User Defined Operational Picture (UDOP) to provide the capability to create, visualize, and share decision-relevant views of space operational environment at all echelons.
PE 0305912F SLBM RADAR WARNING SYSTEM

SEA-LAUNCHED BALLISTIC MISSILE (SLBM) DETECTION AND WARNING SYSTEM: The primary mission of the 474N SLBM Detection and Warning System is to provide United States Strategic Command (USSTRATCOM) with credible Integrated Tactical Warning/Attack Assessment (ITW/AA) data on all SLBMs penetrating the coverage area. This data includes an estimation of launch and predicted impact (L&PI) locations and times. The secondary mission is to provide the Cheyenne Mountain Air Force Station, CO (CMAFS) and other users with ITW/AA data on Intercontinental Ballistic Missiles (ICBMs) penetrating the coverage area. Additionally, Perimeter Acquisition Radar Attack Characterization System (PARCS) and PAVE Phased Array Warning Systems (PAVE PAWS) support the Space Situational Awareness (SSA) mission by providing near earth satellite surveillance, tracking and identification as required by the Space Control Center, Alternate Space Control Center, and the Joint Intelligence Center. The sensors have an

Exhibit P-40, Budget Line Item Justification: PB 2019 Air Force		Date: February 2018
Appropriation / Budget Activity / Budget Sub Activity: 3021F: Space Procurement, Air Force / BA 01: Space Procurement, Air Force / BSA 1: Space Programs	P-1 Line Item Number / Title: SPCMOD / Space Mods	
ID Code (A=Service Ready, B=Not Service Ready): A	Program Elements for Code B Items: 1203165F, 1203699F	Other Related Program Elements: 0305614F
Line Item MDAP/MAIS Code: 166		

operational availability requirement of 98 percent. The 474N SLBM Detection and Warning System currently consists of: a) the AN/FPQ-16 PARCS and b) the AN/FPS-123 PAVE PAWS System (Phased Array Radars for SLBM Detection and Warning System).

PE 123940F SPACE SITUATION AWARENESS OPERATIONS

GROUND-BASED ELECTRO OPTICAL DEEP SPACE SURVEILLANCE (GEODSS) SERVICE LIFE EXTENSION PROGRAM (SLEP) Phase II: The GEODSS SLEP Phase II will replace aging unsupportable mission critical sub-systems with modern sustainable components, allowing continued mission operations through 2025. GEODSS is a three-site optical telescope system dedicated to the Space Surveillance Network (SSN). The GEODSS sites, located in Socorro, New Mexico; Maui, Hawaii; and Diego Garcia (British Indian Ocean Territories), provide time critical deep-space tracking information for the Joint Space Operations Center (JSpOC). The GEODSS SLEP Phase II will modernize the Sensor Controller, Data Processing, and other unsustainable subsystems as required for all sites. The program will replace the obsolete, diminishing supportable components of the GEODSS Sensor Controller Group (SCG) with sustainable hardware/software technology.

PE 1203710F EO/IR WEATHER SYSTEMS

WEATHER SPACE VEHICLE RELAY GROUND STATION: Residual Geostationary Operational Environmental Satellite (GOES) Relocation is a Department of Defense's (DoD) weather mitigation plan to address Space-based Environmental Monitoring (SBEM) Weather Gaps 1 (Cloud Characterization) and Gap 2 (Theater Weather Imagery) requirements over the Indian Ocean region. The requirements have been validated by the Joint Requirements Oversight Council (JROC) Memo 092-14, dated 3 Sep 2014. The program will leverage a spare National Oceanic and Atmospheric Agency (NOAA) on-orbit geostationary asset for the DoD use, in order to provide timely and reliable high-quality electro-optical/infrared (EO/IR) remote sensing capability that will address the critical weather data needs over the Central Command (CENTCOM) Area of Responsibility (AoR).

Exhibit P-40, Budget Line Item Justification: PB 2019 Air Force	Date: February 2018
Appropriation / Budget Activity / Budget Sub Activity: 3021F: Space Procurement, Air Force / BA 01: Space Procurement, Air Force / BSA 1: Space Programs	**P-1 Line Item Number / Title:** SPCMOD / Space Mods
ID Code (A=Service Ready, B=Not Service Ready): A	**Program Elements for Code B Items:** 1203165F, 1203699F — **Other Related Program Elements:** 0305614F
Line Item MDAP/MAIS Code: 166	

Exhibits Schedule					Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/ MAIS Code	Quantity / Total Cost (Each) / ($ M)	Quantity / Total Cost (Each) / ($ M)	Quantity / Total Cost (Each) / ($ M)	Quantity / Total Cost (Each) / ($ M)	Quantity / Total Cost (Each) / ($ M)	Quantity / Total Cost (Each) / ($ M)
P-40a	Defense Meteorological Satellite Program (SPACE)				- / -	- / 0.975	- / 1.079	- / 1.068	- / -	- / 1.068
P-3a	1 / NAVSTAR GPS-OCS COTS UPGRADE (Reliability & Maintainability)		B		- / 13.136	- / 8.000	- / 13.654	- / 13.481	- / 0.000	- / 13.481
P-40a	JSpOC Mission System				- / -	- / 0.000	- / 3.850	- / 20.366	- / -	- / 20.366
P-40a	Shared Early Warning (SEW)				- / 0.000	- / 0.000	- / 0.000	- / 0.348	- / 0.000	- / 0.348
P-3a	1 / Weather Space Vehicle Relay Ground Station (No text provided.)		A		- / 0.000	- / 0.000	- / 18.620	- / 63.737	- / 0.000	- / 63.737
P-40a	Ballistic Missile Defense Radars				- / 0.000	- / 0.000	- / 0.000	- / 7.935	- / 0.000	- / 7.935
P-40a	Ballistic Missile Early Warning System (BMEWS)				- / 0.000	- / 0.000	- / 0.000	- / 1.500	- / 0.000	- / 1.500
P-3a	1 / BPP Block 02 (Reliability & Maintainability)		A		- / -	- / -	- / 0.000	- / 16.027	- / 0.000	- / 16.027
P-40a	Ballistic Missile Early Warning System (BMEWS)				- / -	- / -	- / -	- / 14.486	- / -	- / 14.486
P-40a	Submarine-Launched Ballistic Missile (SLBM) Radar Warning System				- / 0.000	- / 0.000	- / 0.000	- / 0.500	- / 0.000	- / 0.500
P-3a	1 / PARCS Block 01 (Reliability & Maintainability)		A		- / -	- / -	- / -	- / 8.617	- / 0.000	- / 8.617
P-40	**Total Gross/Weapon System Cost**				**- / 13.136**	**- / 8.975**	**- / 37.203**	**- / 148.065**	**- / 0.000**	**- / 148.065**

Exhibits Schedule					FY 2020	FY 2021	FY 2022	FY 2023	To Complete	Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/ MAIS Code	Quantity / Total Cost (Each) / ($ M)	Quantity / Total Cost (Each) / ($ M)	Quantity / Total Cost (Each) / ($ M)	Quantity / Total Cost (Each) / ($ M)	Quantity / Total Cost (Each) / ($ M)	Quantity / Total Cost (Each) / ($ M)
P-40a	Defense Meteorological Satellite Program (SPACE)				- / -	- / -	- / -	- / -	- / -	- / -
P-3a	1 / NAVSTAR GPS-OCS COTS UPGRADE (Reliability & Maintainability)		B		- / 13.876	- / 13.902	- / 2.043	- / 2.082	- / -	- / 80.174
P-40a	JSpOC Mission System				- / -	- / -	- / -	- / -	- / -	- / -
P-40a	Shared Early Warning (SEW)				- / 0.355	- / 0.361	- / 0.367	- / 0.374	- / 0.000	- / 1.805
P-3a	1 / Weather Space Vehicle Relay Ground Station (No text provided.)		A		- / 0.000	- / 0.000	- / 0.000	- / -	- / -	- / 82.357
P-40a	Ballistic Missile Defense Radars				- / -	- / -	- / -	- / -	- / -	- / -
P-40a	Ballistic Missile Early Warning System (BMEWS)				- / 1.500	- / 1.500	- / 0.000	- / 0.000	- / 0.000	- / 4.500
P-3a	1 / BPP Block 02 (Reliability & Maintainability)		A		- / 21.821	- / 23.810	- / 27.157	- / 26.137	- / -	- / 114.952
P-40a	Ballistic Missile Early Warning System (BMEWS)				- / -	- / -	- / -	- / -	- / -	- / -
P-40a	Submarine-Launched Ballistic Missile (SLBM) Radar Warning System				- / 8.165	- / 8.307	- / 8.456	- / 8.615	- / 0.000	- / 34.043
P-3a	1 / PARCS Block 01 (Reliability & Maintainability)		A		- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / -	- / 8.617
P-40	**Total Gross/Weapon System Cost**				**- / 108.010**	**- / 97.041**	**- / 85.061**	**- / 62.325**	**- / -**	**- / 559.816**

*Title represents 1) the Number / Title for Items; 2) the Number / Title [DODIC] for Ammunition; and/or 3) the Number / Title (Modification Type) for Modifications. Title represents the P-40a Title when only the P-40a Summary/Total is shown.

Note: Totals in this Exhibit P-40 set may not be exact or sum exactly due to rounding.

Justification:
This program, Space Mods P-40A Item New Item, is a new start.

Exhibit P-40, Budget Line Item Justification: PB 2019 Air Force		Date: February 2018
Appropriation / Budget Activity / Budget Sub Activity: 3021F: Space Procurement, Air Force / BA 01: Space Procurement, Air Force / BSA 1: Space Programs	P-1 Line Item Number / Title: SPCMOD / Space Mods	
ID Code (A=Service Ready, B=Not Service Ready): A	Program Elements for Code B Items: 1203165F, 1203699F	Other Related Program Elements: 0305614F
Line Item MDAP/MAIS Code: 166		

This program, 1203912F SMS, P-3A Mod PARCSB1, PARCS Block 01, is a new start.
This program, 1203912F SMS, P-3A Mod PARCSB2, PARCS Block 02, is a new start.

PE 1203160F DEF METEOROLOGICAL SAT PROG (SPACE)

FY19 funding will continue ECPs to maintain the Dual Decommutator and Command Processor (DCCP), Systems Communication Unit (SCU), and Aiken switch sustainment posture and any adjustment to needed funding will be reevaluated each year as the systems continue to age. Rapidly respond to implement system resiliency and situational awareness necessary to operate in the contested space domain. Activities may include, but are not limited to program office support, studies, technical analysis, prototyping, etc.

PE 1203165F NAVSTAR GPS (SPACE AND CONTROL SEGMENTS)

FY2019 GPS OCS COTS Upgrade: FY2019 funding procures GPS Architecture Evolution Plan (AEP), GPS Information Network (GIN), and Launch Anomaly Resolution and Disposal Operations (LADO) commercial equipment that has become obsolete/unsupportable or requires upgrades. Funding will procure equipment for the OCS ground sites including the Master Control Station (MCS), Alternate Master Control Station (AMCS), four Ground Antennas (GAs), six Monitor Stations (MSs), a contractor lab facility, and the Telecommunications Simulator Test Set (TSTS). Modifications include required procurement, nonrecurring engineering, installation, testing, configuration management, security, quality assurance and technical documentation. Funding sustains OCS until OCX transitions to operations, to include support for GPS III and fielding of Modernized GPS User Equipment (MGUE). Continue program office support and other related support activities. Rapidly respond to implement system resiliency and situational awareness necessary to operate in the contested space domain. These activities may include, but are not limited to studies, technical analysis, prototyping, etc.

PE 1203614F JSPOC MISSION SYSTEM

FY 2019 funds will procure a backup operational suite, provide technical refresh of 7 JMS Increment 2 Program of Record hardware/software strings and 2 JMS Increment 2 Test, Training, and Exercise (TTX) hardware/software strings.

PE 0305912F SLBM RADAR WARNING SYSTEM

Where applicable, justification for individual modifications is provided in the P-3A exhibits.

PE 1203940F SPACE SITUATIONAL AWARENESS OPERATIONS

Where applicable, justification for individual modifications is provided in the P-3A exhibits.

PE 1203710F EO/IR WEATHER SYSTEMS

FY 2019 plans include the cost to complete the delivery, installation, and integration of the two Weather Space Vehicle Relay Ground Stations with the legacy satellite command and control system.

Rapidly respond to implement system resiliency and situational awareness necessary to operate in the contested space domain. Activities may include, but are not limited to program office support, studies, technical analysis, prototyping, etc.

PE 1203909F Ballistic Missile Early Warning System (BMEWS)

BPP Block 00 Update: This effort was formerly called BMEWS Block 00 Update and PAVE PAWS Block 00 Update was formerly funded in 3080F/03/8 BPAC 838010 Comm Elect Mods. Starting in FY19 it will be combined and funded in 3021 Space Mod. FY19 will fund ongoing program management administrative costs supporting BMEWS/PAVE PAWS modification efforts and will fund Capital Equipment

Exhibit P-40, Budget Line Item Justification: PB 2019 Air Force		Date: February 2018
Appropriation / Budget Activity / Budget Sub Activity: 3021F: Space Procurement, Air Force / BA 01: Space Procurement, Air Force / BSA 1: Space Programs	**P-1 Line Item Number / Title:** SPCMOD / Space Mods	
ID Code (A=Service Ready, B=Not Service Ready): A	**Program Elements for Code B Items:** 1203165F, 1203699F	**Other Related Program Elements:** 0305614F
Line Item MDAP/MAIS Code: 166		

Replacement of unsupportable mission and support equipment and initial spares to include, but not limited to, sub-array power supplies (SAPS) and associated components. Due to the limited spares demand rates, and indefinite system lifespan, Life of Type buys may be required to support this weapon system.

BPP Block 01 Update: This effort was formerly called BMEWS Block 01 Update and PAVE PAWS Block 01 Update was formerly funded in 3080F/03/8 BPAC 838010 Comm Elect Mods. Starting in FY19 it will be combined and funded in 3021 Space Mod. FY19 will fund ongoing program management administrative costs supporting BMEWS/PAVE PAWS modification efforts and will fund Capital Equipment Replacement of unsupportable mission and support equipment and initial spares to include, but not limited to, array group drivers (AGDs) and associated components. Due to the limited spares demand rates, and indefinite system lifespan, Life of Type buys may be required to support this weapon system.

Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2019 Air Force		Date: February 2018
Appropriation / Budget Activity / Budget Sub Activity: 3021F / 01 / 1	**P-1 Line Item Number / Title:** SPCMOD / Space Mods	**Aggregated Items Title:** Defense Meteorological Satellite Program (SPACE)

Item Number / Title [DODIC]	ID CD	MDAP/ MAIS Code	Prior Years			FY 2017			FY 2018			FY 2019 Base			FY 2019 OCO			FY 2019 Total		
			Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)
Uncategorized																				
Telemetry and Commanding System	A		-	-	-	-	-	0.221	-	-	0.000	-	-	-	-	-	-	-	-	-
Mission Plan/ Schedule	A		-	-	-	-	-	0.000	-	-	0.000	-	-	-	-	-	-	-	-	-
Communications	A		-	-	-	-	-	0.754	-	-	1.079	-	-	1.068	-	-	-	-	-	1.068
Subtotal: Uncategorized			**-**	**-**	**-**	**-**	**-**	***0.975***	**-**	**-**	***1.079***	**-**	**-**	***1.068***	**-**	**-**	**-**	**-**	**-**	***1.068***
Total			**-**	**-**	**-**	**-**	**-**	**0.975**	**-**	**-**	**1.079**	**-**	**-**	**1.068**	**-**	**-**	**-**	**-**	**-**	**1.068**

Note: Subtotals or Totals in this Exhibit P-40a may not be exact or sum exactly, due to rounding.

Exhibit P-3a, Individual Modification: PB 2019 Air Force		Date: February 2018
Appropriation / Budget Activity / Budget Sub Activity: 3021F / 01 / 1	**P-1 Line Item Number / Title:** SPCMOD / Space Mods	**Modification Number / Title:** 1 / NAVSTAR GPS-OCS COTS UPGRADE
ID Code (A=Service Ready, B=Not Service Ready) : B		**MDAP/MAIS Code:**

Resource Summary	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	To Complete	Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	13.136	8.000	13.654	13.481	0.000	13.481	13.876	13.902	2.043	2.082	-	80.174
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	13.136	8.000	13.654	13.481	0.000	13.481	13.876	13.902	2.043	2.082	-	80.174
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**13.136**	**8.000**	**13.654**	**13.481**	**0.000**	**13.481**	**13.876**	**13.902**	**2.043**	**2.082**	**-**	**80.174**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-

Description:

Funding procures GPS Architecture Evolution Plan (AEP), GPS Information Network (GIN), and Launch Anomaly Resolution and Disposal Operations (LADO) commercial equipment that has become obsolete/ unsupportable or requires upgrades. Funding will procure equipment for the OCS ground sites including the Master Control Station (MCS), Alternate Master Control Station (AMCS), four Ground Antennas (GAs), six Monitor Control Stations(MCS), Contractor Lab Facility and Telecommunications Simulator Test Set (TSTS). Modifications include required procurement, non-recurring engineering, installation, testing, configuration management, security, quality assurance and technical documentation. Funding sustains OCS until OCX transitions to operations, to include support for GPS III and fielding of Military GPS User Equipment (MGUE). If not funded, down time and maintenance costs associated with repair or failed equipment will increase, lowering system operational availability.

Milestone/Development Status

Development funding for the OCS is in PE 0305165F. Program complete in FY2013.

Exhibit P-3a, Individual Modification: PB 2019 Air Force		Date: February 2018
Appropriation / Budget Activity / Budget Sub Activity: 3021F / 01 / 1	**P-1 Line Item Number / Title:** SPCMOD / Space Mods	**Modification Number / Title:** 1 / NAVSTAR GPS-OCS COTS UPGRADE
ID Code (A=Service Ready, B=Not Service Ready) : B	**MDAP/MAIS Code:**	
Models of Systems Affected: GPS-OCS	**Modification Type:** Reliability & Maintainability	**Related RDT&E PEs:**

Financial Plan	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	To Complete	Total
	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*
Procurement												
Modification Item 1 of 1: Install Kits												
A Kits												
Recurring												
Install Kits:INSTALL KITS Group A (Active)	14 / 4.820	14 / 2.820	14 / 6.820	14 / 6.820	- / -	14 / 6.820	14 / 6.820	14 / 6.820	- / -	- / -	- / -	84 / 34.920
Subtotal: Recurring	*- / 4.820*	*- / 2.820*	*- / 6.820*	*- / 6.820*	*- / -*	*- / 6.820*	*- / 6.820*	*- / 6.820*	*- / -*	*- / -*	*- / -*	*- / 34.920*
B Kits												
Recurring												
Install Kits:EQUIPMENT Group B (Active)	14 / 1.720	14 / 1.413	14 / 1.413	14 / 1.413	- / -	14 / 1.413	14 / 1.413	14 / 1.413	- / -	- / -	- / -	84 / 8.785
Subtotal: Recurring	*- / 1.720*	*- / 1.413*	*- / 1.413*	*- / 1.413*	*- / -*	*- / 1.413*	*- / 1.413*	*- / 1.413*	*- / -*	*- / -*	*- / -*	*- / 8.785*
Subtotal: Install Kits	*- / 6.540*	*- / 4.233*	*- / 8.233*	*- / 8.233*	*- / -*	*- / 8.233*	*- / 8.233*	*- / 8.233*	*- / -*	*- / -*	*- / -*	*- / 43.705*
Subtotal: Procurement, All Modification Items	*- / 6.540*	*- / 4.233*	*- / 8.233*	*- / 8.233*	*- / -*	*- / 8.233*	*- / 8.233*	*- / 8.233*	*- / -*	*- / -*	*- / -*	*- / 43.705*
Support *(All Modification Items)*												
GROUP A: TOTAL NONRECURRING	- / 2.854	- / 0.620	- / 0.668	- / 0.640	- / -	- / 0.640	- / 0.640	- / 0.640	- / -	- / -	- / -	- / 6.062
Data	- / 1.342	- / 0.718	- / 2.344	- / 2.196	- / -	- / 2.196	- / 2.638	- / 2.629	- / 1.663	- / 1.702	- / -	- / 15.232
SUPPORT-EQUIP	- / 0.397	- / 0.397	- / 0.377	- / 0.380	- / -	- / 0.380	- / 0.380	- / 0.380	- / 0.380	- / 0.380	- / -	- / 3.071
Subtotal: Support	*- / 4.593*	*- / 1.735*	*- / 3.389*	*- / 3.216*	*- / -*	*- / 3.216*	*- / 3.658*	*- / 3.649*	*- / 2.043*	*- / 2.082*	*- / -*	*- / 24.365*
Installation												
Modification Item 1 of 1: Install Kits	14 / 2.003	14 / 2.032	14 / 2.032	14 / 2.032	- / -	14 / 2.032	14 / 1.985	14 / 2.020	- / -	- / -	- / -	84 / 12.104
Subtotal: Installation	*14 / 2.003*	*14 / 2.032*	*14 / 2.032*	*14 / 2.032*	*- / -*	*14 / 2.032*	*14 / 1.985*	*14 / 2.020*	*- / -*	*- / -*	*- / -*	*84 / 12.104*
Total												
Total Cost (Procurement + Support + Installation)	**13.136**	**8.000**	**13.654**	**13.481**	**0.000**	**13.481**	**13.876**	**13.902**	**2.043**	**2.082**	**-**	**80.174**

Exhibit P-3a, Individual Modification: PB 2019 Air Force		Date: February 2018
Appropriation / Budget Activity / Budget Sub Activity: 3021F / 01 / 1	**P-1 Line Item Number / Title:** SPCMOD / Space Mods	**Modification Number / Title:** 1 / NAVSTAR GPS-OCS COTS UPGRADE

ID Code (A=Service Ready, B=Not Service Ready) : B | **MDAP/MAIS Code:**

Modification Item 1 of 1: Install Kits

Manufacturer Information

Manufacturer Name: Lockheed Martin	Manufacturer Location: Various
Administrative Leadtime *(in Months)*: 7	Production Leadtime *(in Months)*: 2

Dates	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023
Contract Dates	May 2017	May 2018	May 2019	May 2020	May 2021		
Delivery Dates	Jul 2017	Jul 2018	Jul 2019	Jul 2020	Jul 2021		

Installation Information

Method of Implementation: Contract Field Team

Installation Cost	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	To Complete	Total
	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*
Prior Years	14 / 2.003	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	14 / 2.003
FY 2017	- / -	14 / 2.032	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	14 / 2.032
FY 2018	- / -	- / -	14 / 2.032	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	14 / 2.032
FY 2019	- / -	- / -	- / -	14 / 2.032	- / -	14 / 2.032	- / -	- / -	- / -	- / -	- / -	14 / 2.032
FY 2020	- / -	- / -	- / -	- / -	- / -	- / -	14 / 1.985	- / -	- / -	- / -	- / -	14 / 1.985
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -	- / -	14 / 2.020	- / -	- / -	- / -	14 / 2.020
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	14 / 2.003	14 / 2.032	14 / 2.032	14 / 2.032	- / -	14 / 2.032	14 / 1.985	14 / 2.020	- / -	- / -	- / -	84 / 12.104

Installation Schedule

	PYS	FY 2017				FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	14	-	-	14	-	-	-	14	-	-	-	14	-	-	-	14	-	-	-	14	-	-	-	-	-	-	-	-	-	0	84
Out	14	-	-	-	14	-	-	-	14	-	-	-	14	-	-	-	14	-	-	-	14	-	-	-	-	-	-	-	-	0	84

Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2019 Air Force		Date: February 2018
Appropriation / Budget Activity / Budget Sub Activity: 3021F / 01 / 1	**P-1 Line Item Number / Title:** SPCMOD / Space Mods	**Aggregated Items Title:** JSpOC Mission System

Item Number / Title [DODIC]	ID CD	MDAP/ MAIS Code	Prior Years			FY 2017			FY 2018			FY 2019 Base			FY 2019 OCO			FY 2019 Total		
			Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)
Uncategorized																				
Joint Space Operations Center Mission System	A		-	-	-	-	-	0.000	-	-	3.850	-	-	20.366	-	-	-	-	-	20.366
Subtotal: Uncategorized			**-**	**-**	**-**	**-**	**-**	***0.000***	**-**	**-**	***3.850***	**-**	**-**	***20.366***	**-**	**-**	**-**	**-**	**-**	***20.366***
Total			**-**	**-**	**-**	**-**	**-**	**0.000**	**-**	**-**	**3.850**	**-**	**-**	**20.366**	**-**	**-**	**-**	**-**	**-**	**20.366**

Note: Subtotals or Totals in this Exhibit P-40a may not be exact or sum exactly, due to rounding.

Remarks:
FY 2019 Funds will procure a backup operational suite, provide technical refresh of 7 JMS Increment 2 Program of Record hardware/software strings and 2 JMS Increment 2 Test, Training, and Exercise (TTX) hardware/software strings.

Exhibit P-40a, Budget Item Justification For Aggregated Modification Items: PB 2019 Air Force		Date: February 2018
Appropriation / Budget Activity / Budget Sub Activity: 3021F / 01 / 1	**P-1 Line Item Number / Title:** SPCMOD / Space Mods	**Aggregated Modification Items Title:** Shared Early Warning (SEW)

Item Number / Title	ID CD	MDAP/ MAIS Code	Prior Years			FY 2017			FY 2018			FY 2019 Base			FY 2019 OCO			FY 2019 Total		
			Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)
SEWS / SEWS			-	-	-	-	-	-	-	-	-	-	-	0.348	-	-	0.000	-	-	0.348
Total			**-**	**-**	**0.000**	**-**	**-**	**0.000**	**-**	**-**	**0.000**	**-**	**-**	**0.348**	**-**	**-**	**0.000**	**-**	**-**	**0.348**

Item Number / Title	ID CD	MDAP/ MAIS Code	FY 2020			FY 2021			FY 2022			FY 2023			To Complete			Total Cost		
			Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)
SEWS / SEWS			-	-	0.355	-	-	0.361	-	-	0.367	-	-	0.374	-	-	-	-	-	1.805
Total			**-**	**-**	**0.355**	**-**	**-**	**0.361**	**-**	**-**	**0.367**	**-**	**-**	**0.374**	**-**	**-**	**0.000**	**-**	**-**	**1.805**

Note: Subtotals or Totals in this Exhibit P-40a may not be exact or sum exactly, due to rounding.

Modification Information:

Item Number / Title	Models of Systems Affected	Modification Type
SEWS / SEWS	SEWS	Reliability & Maintainability

Exhibit P-3a, Individual Modification: PB 2019 Air Force		Date: February 2018
Appropriation / Budget Activity / Budget Sub Activity: 3021F / 01 / 1	**P-1 Line Item Number / Title:** SPCMOD / Space Mods	**Modification Number / Title:** 1 / Weather Space Vehicle Relay Ground Station

ID Code (A=Service Ready, B=Not Service Ready) : A | **MDAP/MAIS Code:**

Resource Summary	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	To Complete	Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	0.000	0.000	18.620	63.737	0.000	63.737	0.000	0.000	0.000	-	-	82.357
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	0.000	0.000	18.620	63.737	0.000	63.737	0.000	0.000	0.000	-	-	82.357
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**0.000**	**0.000**	**18.620**	**63.737**	**0.000**	**63.737**	**0.000**	**0.000**	**0.000**	**-**	**-**	**82.357**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-

Description:

Residual Geostationary Operational Environmental Satellite (GOES) Relocation is a Department of Defense (DoD) weather mitigation plan to address Space-Based Environmental Monitoring (SBEM) Weather Gap 1 (Cloud Characterization) and Gap 2 (Theater Weather Imagery) requirements over the Indian Ocean region. The requirements have been validated by the Joint Requirements Oversight Council (JROC) Memo 092-14, dated 3 Sep 2014. The program will leverage a spare National Oceanic and Atmospheric Agency (NOAA) on-orbit geostationary asset for the DoD use, in order to provide timely and reliable high-quality Electro-Optical/infrared (EO/IR) remote sensing capability that will address the critical weather data needs over the Central Command (CENTCOM) Area of Responsibility (AoR).

This is the DoD's solution to address SBEM Gaps 1 and 2 needs over the Indian Ocean region. The Remote Station System (RGS) capability procurement is planned to include deployment, operation and sustainment of the RGS capability through the satellite mission End of Life (EoL), estimated 2025.

The SBEM Analysis of Alternatives (AoA), completed in Sep 2013, concluded that the Weather Gaps 1 and 2 can be met by increased reliance on civil/international partnerships for the necessary data. With recent European announcement to de-commission/de-orbit MeteoSat-7 in FY17, DoD requires a replenishment geostationary EO/IR sensing capability to continue providing necessary weather data to warfighters in the CENTCOM AOR. European Organization for the Exploitation of Meteorological Satellites (EUMETSAT) has provided a short-term solution by relocating MeteoSat-8 for partial coverage of the Indian Ocean region, but its designed mission EoL is 2019. For the long-term solution, with agreement from NOAA, the Air Force will take ownership of one or more residual GOES assets. NOAA will drift the satellite(s) to a location over the Indian Ocean region to provide required cloud characterization and theater weather imagery data. The Air Force will award a contract to establish, operate and maintain the remote ground infrastructure and use the existing NOAA Satellite Operational Facility (NSOF) at Suitland, MD for Command & Control and anomaly resolution.

Secondary investments may be supported to address weather gaps identified in the Meteorological and Oceanographic (METOC) Initial Capability Document (ICD).

Ground infrastructure will include:
1) Procurement of 2x GOES antennae for data downlink at a Remote Ground Station (RGS) in the Indian Ocean region
2) Integration of GOES antennae into RGS and set up communication link to transmit data back to Weather Centrals for processing
3) Set up C2 ground station for daily Telemetry, Tracking & Commanding (TT&C) and proportionally reimburse NOAA for residual GOES operations during the drift planning and implementation phases.

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 effective. This agility 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 speed decision-making, prototype

Exhibit P-3a, Individual Modification: PB 2019 Air Force		Date: February 2018
Appropriation / Budget Activity / Budget Sub Activity: 3021F / 01 / 1	**P-1 Line Item Number / Title:** SPCMOD / Space Mods	**Modification Number / Title:** 1 / Weather Space Vehicle Relay Ground Station
ID Code (A=Service Ready, B=Not Service Ready) : A	**MDAP/MAIS Code:**	

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".

Exhibit P-3a, Individual Modification: PB 2019 Air Force		Date: February 2018
Appropriation / Budget Activity / Budget Sub Activity: 3021F / 01 / 1	**P-1 Line Item Number / Title:** SPCMOD / Space Mods	**Modification Number / Title:** 1 / Weather Space Vehicle Relay Ground Station
ID Code (A=Service Ready, B=Not Service Ready) : A		**MDAP/MAIS Code:**
Models of Systems Affected: No text provided.	**Modification Type:** No text provided.	**Related RDT&E PEs:**

Financial Plan	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	To Complete	Total
	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*
Procurement												
Modification Item 1 of 3: GOES Relocation Support												
A Kits												
Recurring												
GOES Relocation Support:INSTALL KITS Group A (Active)	- / -	- / -	- / 10.820	- / 23.000	- / -	- / 23.000	- / -	- / -	- / -	- / -	- / -	- / 33.820
Subtotal: Recurring	*- / -*	*- / -*	*- / 10.820*	*- / 23.000*	*- / -*	*- / 23.000*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 33.820*
Subtotal: GOES Relocation Support	*- / -*	*- / -*	*- / 10.820*	*- / 23.000*	*- / -*	*- / 23.000*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 33.820*
Modification Item 2 of 3: Technical Mission Analysis												
A Kits												
Recurring												
Technical Mission Analysis:INSTALL KITS Group A (Active)	- / -	- / -	- / 0.700	- / 0.800	- / -	- / 0.800	- / -	- / -	- / -	- / -	- / -	- / 1.500
Subtotal: Recurring	*- / -*	*- / -*	*- / 0.700*	*- / 0.800*	*- / -*	*- / 0.800*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 1.500*
Subtotal: Technical Mission Analysis	*- / -*	*- / -*	*- / 0.700*	*- / 0.800*	*- / -*	*- / 0.800*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 1.500*
Modification Item 3 of 3: Weather Relay Ground Station												
A Kits												
Recurring												
Weather Relay Ground Station:INSTALL KITS Group A (Active)	- / 0.000	- / 0.000	1 / 6.500	- / 39.437	- / -	- / 39.437	- / 0.000	- / 0.000	- / 0.000	- / -	- / -	1 / 45.937
Subtotal: Recurring	*- / 0.000*	*- / 0.000*	*- / 6.500*	*- / 39.437*	*- / -*	*- / 39.437*	*- / 0.000*	*- / 0.000*	*- / 0.000*	*- / -*	*- / -*	*- / 45.937*
Subtotal: Weather Relay Ground Station	*- / 0.000*	*- / 0.000*	*- / 6.500*	*- / 39.437*	*- / -*	*- / 39.437*	*- / 0.000*	*- / 0.000*	*- / 0.000*	*- / -*	*- / -*	*- / 45.937*
Subtotal: Procurement, All Modification Items	*- / 0.000*	*- / 0.000*	*- / 18.020*	*- / 63.237*	*- / -*	*- / 63.237*	*- / 0.000*	*- / 0.000*	*- / 0.000*	*- / -*	*- / -*	*- / 81.257*
Support *(All Modification Items)*												
PMA - Other Gov't Costs	- / -	- / -	- / 0.600	- / 0.500	- / -	- / 0.500	- / -	- / -	- / -	- / -	- / -	- / 1.100
Subtotal: Support	*- / -*	*- / -*	*- / 0.600*	*- / 0.500*	*- / -*	*- / 0.500*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 1.100*
Installation												
Subtotal: Installation	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*
Total												

Exhibit P-3a, Individual Modification: PB 2019 Air Force		Date: February 2018
Appropriation / Budget Activity / Budget Sub Activity: 3021F / 01 / 1	**P-1 Line Item Number / Title:** SPCMOD / Space Mods	**Modification Number / Title:** 1 / Weather Space Vehicle Relay Ground Station
ID Code (A=Service Ready, B=Not Service Ready) : A		**MDAP/MAIS Code:**
Models of Systems Affected: No text provided.	**Modification Type:** No text provided.	**Related RDT&E PEs:**

Financial Plan	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	To Complete	Total
	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*
Total Cost (Procurement + Support + Installation)	**0.000**	**0.000**	**18.620**	**63.737**	**0.000**	**63.737**	**0.000**	**0.000**	**0.000**	**-**	**-**	**82.357**

Exhibit P-3a, Individual Modification: PB 2019 Air Force		Date: February 2018
Appropriation / Budget Activity / Budget Sub Activity: 3021F / 01 / 1	**P-1 Line Item Number / Title:** SPCMOD / Space Mods	**Modification Number / Title:** 1 / Weather Space Vehicle Relay Ground Station

ID Code (A=Service Ready, B=Not Service Ready) : A	**MDAP/MAIS Code:**

Modification Item 1 of 3: GOES Relocation Support

Manufacturer Information

Manufacturer Name: Unknown	Manufacturer Location: Unknown
Administrative Leadtime *(in Months)*: 0	Production Leadtime *(in Months)*: 0

Dates	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023
Contract Dates							
Delivery Dates							

Installation Information

Method of Implementation (Organic): Org/Intermediate	**Installation Quantity:** 0

Exhibit P-3a, Individual Modification: PB 2019 Air Force		Date: February 2018
Appropriation / Budget Activity / Budget Sub Activity: 3021F / 01 / 1	**P-1 Line Item Number / Title:** SPCMOD / Space Mods	**Modification Number / Title:** 1 / Weather Space Vehicle Relay Ground Station

ID Code (A=Service Ready, B=Not Service Ready) : A	**MDAP/MAIS Code:**

Modification Item 2 of 3: Technical Mission Analysis

Manufacturer Information

Manufacturer Name: Aerospace Corporation	Manufacturer Location: El Segundo, CA
Administrative Leadtime *(in Months)*: 0	Production Leadtime *(in Months)*: 0

Dates	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023
Contract Dates		Oct 2017					
Delivery Dates		Oct 2017					

Installation Information

Method of Implementation (Organic): Org/Intermediate	**Installation Quantity:** 0

Exhibit P-3a, Individual Modification: PB 2019 Air Force		Date: February 2018
Appropriation / Budget Activity / Budget Sub Activity: 3021F / 01 / 1	**P-1 Line Item Number / Title:** SPCMOD / Space Mods	**Modification Number / Title:** 1 / Weather Space Vehicle Relay Ground Station

ID Code (A=Service Ready, B=Not Service Ready) : A	MDAP/MAIS Code:

Modification Item 3 of 3: Weather Relay Ground Station

Manufacturer Information

Manufacturer Name: Unknown	Manufacturer Location: Unknown
Administrative Leadtime *(in Months)*: 0	Production Leadtime *(in Months)*: 0

Dates	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023
Contract Dates		Jan 2018					
Delivery Dates		Jan 2018					

Installation Information

Method of Implementation (Organic): Org/Intermediate	Installation Quantity: 0

Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2019 Air Force		Date: February 2018
Appropriation / Budget Activity / Budget Sub Activity: 3021F / 01 / 1	P-1 Line Item Number / Title: SPCMOD / Space Mods	Aggregated Items Title: Ballistic Missile Defense Radars

Item Number / Title [DODIC]	ID CD	MDAP/ MAIS Code	Prior Years			FY 2017			FY 2018			FY 2019 Base			FY 2019 OCO			FY 2019 Total		
			Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)
Block 00																				
New Item	A		-	-	0.000	-	-	0.000	-	-	0.000	7.935	1	7.935	-	-	0.000	7.935	1	7.935
Subtotal: Block 00			**-**	**-**	***0.000***	**-**	**-**	***0.000***	**-**	**-**	***0.000***	**-**	**-**	***7.935***	**-**	**-**	***0.000***	**-**	**-**	***7.935***
Total			**-**	**-**	**0.000**	**-**	**-**	**0.000**	**-**	**-**	**0.000**	**-**	**-**	**7.935**	**-**	**-**	**0.000**	**-**	**-**	**7.935**

Note: Subtotals or Totals in this Exhibit P-40a may not be exact or sum exactly, due to rounding.

Exhibit P-40a, Budget Item Justification For Aggregated Modification Items: PB 2019 Air Force		Date: February 2018
Appropriation / Budget Activity / Budget Sub Activity: 3021F / 01 / 1	**P-1 Line Item Number / Title:** SPCMOD / Space Mods	**Aggregated Modification Items Title:** Ballistic Missile Early Warning System (BMEWS)

Item Number / Title	ID CD	MDAP/ MAIS Code	Prior Years			FY 2017			FY 2018			FY 2019 Base			FY 2019 OCO			FY 2019 Total		
			Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)
BMEWS / DP/SP			-	-	-	-	-	-	-	-	-	-	-	1.500	-	-	-	-	-	1.500
Total			**-**	**-**	**0.000**	**-**	**-**	**0.000**	**-**	**-**	**0.000**	**-**	**-**	**1.500**	**-**	**-**	**0.000**	**-**	**-**	**1.500**

Item Number / Title	ID CD	MDAP/ MAIS Code	FY 2020			FY 2021			FY 2022			FY 2023			To Complete			Total Cost		
			Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)
BMEWS / DP/SP			-	-	1.500	-	-	1.500	-	-	-	-	-	-	-	-	-	-	-	4.500
Total			**-**	**-**	**1.500**	**-**	**-**	**1.500**	**-**	**-**	**0.000**	**-**	**-**	**0.000**	**-**	**-**	**0.000**	**-**	**-**	**4.500**

Note: Subtotals or Totals in this Exhibit P-40a may not be exact or sum exactly, due to rounding.

Modification Information:

Item Number / Title	Models of Systems Affected	Modification Type
BMEWS / DP/SP	NA	Reliability & Maintainability

Exhibit P-3a, Individual Modification: PB 2019 Air Force		Date: February 2018
Appropriation / Budget Activity / Budget Sub Activity: 3021F / 01 / 1	P-1 Line Item Number / Title: SPCMOD / Space Mods	Modification Number / Title: 1 / BPP Block 02
ID Code (A=Service Ready, B=Not Service Ready) : A		MDAP/MAIS Code:

Resource Summary	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	To Complete	Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	-	-	0.000	16.027	0.000	16.027	21.821	23.810	27.157	26.137	-	114.952
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	-	-	0.000	16.027	0.000	16.027	21.821	23.810	27.157	26.137	-	114.952
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**-**	**-**	**0.000**	**16.027**	**0.000**	**16.027**	**21.821**	**23.810**	**27.157**	**26.137**	**-**	**114.952**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-

Description:

The BALLISTIC MISSILE EARLY WARNING SYSTEM (BMEWS) and the PAVE PHASED ARRAY WARNING SYSTEM (PAVE PAWS) are ground based radar systems with missions to support the Missile Correlation, Space Surveillance, and Missile Defense Centers. The radar systems provide United States Strategic Command (USSTRATCOM) with credible Integrated Tactical Warning/Attack Assessment (ITW/AA) data on all Sea-Launched Ballistic Missiles (SLBMs) and Inter-Continental Ballistic Missiles (ICBMs) penetrating the coverage area including Launch and Predicted Impact (L&PI) data for attack assessment and response determination. The radar systems also supports the Space Situational Awareness (SSA) network providing near-earth satellite surveillance and tracking, reporting observational (metric), SOI on man-made satellites and maintenance of the space catalog as required by the Joint Space Operations Center, Alternate Space Operations Center, and the National Air and Space Intelligence Center mitigating the significantly increasing potential for collisions with national assets, including manned space platforms. The Upgraded Early Warning Radar (UEWR) site at Beale AFB also has a Missile Defense (MD) mission supporting the Missile Defense Agency. The BMEWS and PAVE PAWS shares a common baseline and mission with the difference that BMEWS deploys more array elements on its radar faces. BMEWS radars are located at Thule Air Base, Greenland; Clear Air Force Station, AK; and Royal Air Force (RAF) Fylingdales, UK. PAVE PAWS radars are located at Beale AFB, CA and Cape Cod AFS, MA. Additionally there is a site for testing (System Program Agency) located in the Centralized Integration Support Facility (CISF) at Peterson AFB, CO.
The BMEWS and PAVE PAWS mission equipment and associated sustainment suites consist of a mix of unique, custom-built components that are increasingly more difficult to maintain due to availability of replacement parts and obsolete COTS based subsystems that are no longer supported by the original equipment manufacturers. In addition, radar transmit & receive components, processing equipment, and power distribution elements, and other radar front-end equipment are 30+ years old, highly inefficient, and require replacement. Without these replacements there is a high risk that equipment failures will cause unacceptable mission downtime in order to troubleshoot and repair.

This effort was formerly called BMEWS Block 02 Update and PAVE PAWS Block 02 Update and was formerly funded in 3080F/03/8 BPAC 838010 Comm Elect Mods. Starting in FY19 it will be combined and funded in 3021 Space Mod.

FY19 will fund ongoing program management administrative costs supporting BMEWS/PAVE PAWS modification efforts and will fund replacement of unsupportable mission and support equipment and initial spares to include, but not limited to, solid state modules (SSMs) and associated components. Due to the limited spares demand rates, and indefinite system lifespan, Life of Type buys may be required to support this weapon system.

Milestone/Development Status

N/A

Exhibit P-3a, Individual Modification: PB 2019 Air Force		Date: February 2018
Appropriation / Budget Activity / Budget Sub Activity: 3021F / 01 / 1	P-1 Line Item Number / Title: SPCMOD / Space Mods	Modification Number / Title: 1 / BPP Block 02
ID Code (A=Service Ready, B=Not Service Ready) : A	MDAP/MAIS Code:	
Models of Systems Affected: NA	Modification Type: Reliability & Maintainability	Related RDT&E PEs:

Financial Plan	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	To Complete	Total
	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*
Procurement												
Modification Item 1 of 1: Equipment												
B Kits												
Recurring												
Equipment:EQUIPMENT Group B (Active)	- / -	- / -	- / -	1 / 14.187	- / -	1 / 14.187	1 / 20.321	1 / 22.310	1 / 25.657	1 / 24.637	- / -	5 / 107.112
Subtotal: Recurring	- / -	- / -	- / -	- / *14.187*	- / -	- / *14.187*	- / *20.321*	- / *22.310*	- / *25.657*	- / *24.637*	- / -	- / *107.112*
Subtotal: Equipment	- / -	- / -	- / -	- / *14.187*	- / -	- / *14.187*	- / *20.321*	- / *22.310*	- / *25.657*	- / *24.637*	- / -	- / *107.112*
Subtotal: Procurement, All Modification Items	- / -	- / -	- / -	- / *14.187*	- / -	- / *14.187*	- / *20.321*	- / *22.310*	- / *25.657*	- / *24.637*	- / -	- / *107.112*
Support *(All Modification Items)*												
PMA - Contractor Services	- / -	- / -	- / -	- / 1.840	- / -	- / 1.840	- / 1.500	- / 1.500	- / 1.500	- / 1.500	- / -	- / 7.840
Subtotal: Support	- / -	- / -	- / -	- / *1.840*	- / -	- / *1.840*	- / *1.500*	- / *1.500*	- / *1.500*	- / *1.500*	- / -	- / *7.840*
Installation												
Subtotal: Installation	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total												
Total Cost (Procurement + Support + Installation)	**-**	**-**	**0.000**	**16.027**	**0.000**	**16.027**	**21.821**	**23.810**	**27.157**	**26.137**	**-**	**114.952**

Exhibit P-3a, Individual Modification: PB 2019 Air Force		Date: February 2018
Appropriation / Budget Activity / Budget Sub Activity: 3021F / 01 / 1	**P-1 Line Item Number / Title:** SPCMOD / Space Mods	**Modification Number / Title:** 1 / BPP Block 02
ID Code (A=Service Ready, B=Not Service Ready) : A		**MDAP/MAIS Code:**

Modification Item 1 of 1: Equipment

Manufacturer Information

Manufacturer Name: TBD	Manufacturer Location: TBD
Administrative Leadtime *(in Months)*: 3	Production Leadtime *(in Months)*: 15

Dates	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023
Contract Dates			Jun 2019	Jun 2020	Jun 2021	Jun 2022	Jun 2023
Delivery Dates			Sep 2020	Sep 2021	Sep 2022	Sep 2023	Sep 2024

Installation Information

Method of Implementation (Organic): Org/Intermediate	**Installation Quantity:** 0

Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2019 Air Force		Date: February 2018
Appropriation / Budget Activity / Budget Sub Activity: 3021F / 01 / 1	**P-1 Line Item Number / Title:** SPCMOD / Space Mods	**Aggregated Items Title:** Ballistic Missile Early Warning System (BMEWS)

Item Number / Title [DODIC]	ID CD	MDAP/ MAIS Code	Prior Years			FY 2017			FY 2018			FY 2019 Base			FY 2019 OCO			FY 2019 Total		
			Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)
BPP Block 00 Update																				
New Item	A		-	-	-	-	-	-	-	-	-	7.986	1	7.986	-	-	-	7.986	1	7.986
Subtotal: BPP Block 00 Update			**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	***7.986***	**-**	**-**	**-**	**-**	**-**	***7.986***
BPP Block 01 Update																				
New Item	A		-	-	-	-	-	-	-	-	-	6.500	1	6.500	-	-	-	6.500	1	6.500
Subtotal: BPP Block 01 Update			**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	***6.500***	**-**	**-**	**-**	**-**	**-**	***6.500***
Total			**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**14.486**	**-**	**-**	**-**	**-**	**-**	**14.486**

Note: Subtotals or Totals in this Exhibit P-40a may not be exact or sum exactly, due to rounding.

Exhibit P-40a, Budget Item Justification For Aggregated Modification Items: PB 2019 Air Force		Date: February 2018
Appropriation / Budget Activity / Budget Sub Activity: 3021F / 01 / 1	**P-1 Line Item Number / Title:** SPCMOD / Space Mods	**Aggregated Modification Items Title:** Submarine-Launched Ballistic Missile (SLBM) Radar Warning System

Item Number / Title	ID CD	MDAP/ MAIS Code	Prior Years			FY 2017			FY 2018			FY 2019 Base			FY 2019 OCO			FY 2019 Total		
			Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)
PARCSB2 / PARCS Block 02			-	-	-	-	-	-	-	-	-	-	-	0.500	-	-	-	-	-	0.500
Total			**-**	**-**	**0.000**	**-**	**-**	**0.000**	**-**	**-**	**0.000**	**-**	**-**	**0.500**	**-**	**-**	**0.000**	**-**	**-**	**0.500**

Item Number / Title	ID CD	MDAP/ MAIS Code	FY 2020			FY 2021			FY 2022			FY 2023			To Complete			Total Cost		
			Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)
PARCSB2 / PARCS Block 02			-	-	8.165	-	-	8.307	-	-	8.456	-	-	8.615	-	-	-	-	-	34.043
Total			**-**	**-**	**8.165**	**-**	**-**	**8.307**	**-**	**-**	**8.456**	**-**	**-**	**8.615**	**-**	**-**	**0.000**	**-**	**-**	**34.043**

Note: Subtotals or Totals in this Exhibit P-40a may not be exact or sum exactly, due to rounding.

Modification Information:

Item Number / Title	Models of Systems Affected	Modification Type
PARCSB2 / PARCS Block 02	NA	Reliability & Maintainability

Exhibit P-3a, Individual Modification: PB 2019 Air Force		Date: February 2018
Appropriation / Budget Activity / Budget Sub Activity: 3021F / 01 / 1	P-1 Line Item Number / Title: SPCMOD / Space Mods	Modification Number / Title: 1 / PARCS Block 01
ID Code (A=Service Ready, B=Not Service Ready) : A		MDAP/MAIS Code:

Resource Summary	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	To Complete	Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	-	-	-	8.617	0.000	8.617	0.000	0.000	0.000	0.000	-	8.617
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	-	-	-	8.617	0.000	8.617	0.000	0.000	0.000	0.000	-	8.617
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**-**	**-**	**-**	**8.617**	**0.000**	**8.617**	**0.000**	**0.000**	**0.000**	**0.000**	**-**	**8.617**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-

Description:

This program, 1203912F SMS, P-3A Mod PARCSB1, PARCS Block 01, is a new start.
Formerly part of Space Mods Space mod BPAC 836790 in OPAF for FY15 and prior, appropriated in Space Procurement Air Force in FY16. Perimeter Acquisition Radar Attack Characterization System (PARCS) Program Office plans for and procures replacement components for unsupportable, unobtainable, and unreliable system components. PARCS equipment is composed of custom built components that became obsolete in the 1980s. Most spare parts for this system are no longer available and have no logistics tail. Without replacements there is a high risk of mission failure and/or unacceptable downtime for repair. To best ensure operational availability, replacement projects are performed in phases targeting the highest risk components of the subsystems.

In FY19, PE 1203912F, PARCS efforts were transferred to Appropriation 3021, Space Mods Space, BPAC SPCMOD; from Appropriation 3080, Comm Elect Mods, BPAC 838010. During FY18, PMA costs to initiate Block 01 were funded in Comm Elect Mods.

FY19 funds will be used to continue Block 01 by modifying the PARCS system for the replacement of unsupportable and unreliable components to include (with any required initial spares), but not limited to, the PARCS Mission Data Processor, Radar Transmitter, Antenna Group, Exciter Group, Radio Frequency Signal Processor Group, Performance Monitor Group, Radar Return Generator Group, Digital Data Group, and Radar Controller Group. Due to the limited spares demand rates, and indefinite system lifespan, Life of Type buys may be required to support this weapon system. Additionally, FY19 will fund PMA costs associated with support of the Block 01 program and will fund PMA costs to initiate planning for Block 02.

Milestone/Development Status

N/A

Exhibit P-3a, Individual Modification: PB 2019 Air Force		Date: February 2018
Appropriation / Budget Activity / Budget Sub Activity: 3021F / 01 / 1	**P-1 Line Item Number / Title:** SPCMOD / Space Mods	**Modification Number / Title:** 1 / PARCS Block 01
ID Code (A=Service Ready, B=Not Service Ready) : A	**MDAP/MAIS Code:**	
Models of Systems Affected: NA	**Modification Type:** Reliability & Maintainability	**Related RDT&E PEs:**

Financial Plan	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	To Complete	Total
	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*
Procurement												
Modification Item 1 of 2: COMMON: Install Kits												
A Kits												
Recurring												
COMMON: Install Kits:INSTALL KITS Group A (Active)	- / -	- / -	- / -	1 / 0.100	- / -	1 / 0.100	- / -	- / -	- / -	- / -	- / -	1 / 0.100
Subtotal: Recurring	- / -	- / -	- / -	- / *0.100*	- / -	- / *0.100*	- / -	- / -	- / -	- / -	- / -	- / *0.100*
Subtotal: COMMON: Install Kits	- / -	- / -	- / -	- / *0.100*	- / -	- / *0.100*	- / -	- / -	- / -	- / -	- / -	- / *0.100*
Modification Item 2 of 2: PARCS: EQUIPMENT												
B Kits												
Recurring												
PARCS: EQUIPMENT:EQUIPMENT Group B (Active)	- / -	- / -	- / -	1 / 8.267	- / -	1 / 8.267	- / -	- / -	- / -	- / -	- / -	1 / 8.267
Subtotal: Recurring	- / -	- / -	- / -	- / *8.267*	- / -	- / *8.267*	- / -	- / -	- / -	- / -	- / -	- / *8.267*
Subtotal: PARCS: EQUIPMENT	- / -	- / -	- / -	- / *8.267*	- / -	- / *8.267*	- / -	- / -	- / -	- / -	- / -	- / *8.267*
Subtotal: Procurement, All Modification Items	- / -	- / -	- / -	- / *8.367*	- / -	- / *8.367*	- / -	- / -	- / -	- / -	- / -	- / *8.367*
Support *(All Modification Items)*												
PMA - Contractor Services	- / -	- / -	- / -	- / 0.250	- / -	- / 0.250	- / -	- / -	- / -	- / -	- / -	- / 0.250
Subtotal: Support	- / -	- / -	- / -	- / *0.250*	- / -	- / *0.250*	- / -	- / -	- / -	- / -	- / -	- / *0.250*
Installation												
Subtotal: Installation	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total												
Total Cost (Procurement + Support + Installation)	**-**	**-**	**-**	**8.617**	**0.000**	**8.617**	**0.000**	**0.000**	**0.000**	**0.000**	**-**	**8.617**

Exhibit P-3a, Individual Modification: PB 2019 Air Force		Date: February 2018
Appropriation / Budget Activity / Budget Sub Activity: 3021F / 01 / 1	**P-1 Line Item Number / Title:** SPCMOD / Space Mods	**Modification Number / Title:** 1 / PARCS Block 01
ID Code (A=Service Ready, B=Not Service Ready) : A		**MDAP/MAIS Code:**

Modification Item 1 of 2: COMMON: Install Kits

Manufacturer Information

Manufacturer Name: N/A	Manufacturer Location: N/A
Administrative Leadtime *(in Months)*:	Production Leadtime *(in Months)*:

Dates	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023
Contract Dates							
Delivery Dates							

Installation Information

Method of Implementation (Organic): Org/Intermediate	**Installation Quantity:** 0

Exhibit P-3a, Individual Modification: PB 2019 Air Force		Date: February 2018
Appropriation / Budget Activity / Budget Sub Activity: 3021F / 01 / 1	**P-1 Line Item Number / Title:** SPCMOD / Space Mods	**Modification Number / Title:** 1 / PARCS Block 01
ID Code (A=Service Ready, B=Not Service Ready) : A		**MDAP/MAIS Code:**
Modification Item 2 of 2: PARCS: EQUIPMENT		

Manufacturer Information

Manufacturer Name: TBD	Manufacturer Location: TBD
Administrative Leadtime *(in Months)*: 3	Production Leadtime *(in Months)*: 15

Dates	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023
Contract Dates			May 2019				
Delivery Dates			Aug 2020				

Installation Information

Method of Implementation (Organic): Org/Intermediate	**Installation Quantity:** 1

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Exhibit P-40, Budget Line Item Justification: PB 2019 Air Force	Date: February 2018
Appropriation / Budget Activity / Budget Sub Activity: 3021F: Space Procurement, Air Force / BA 01: Space Procurement, Air Force / BSA 1: Space Programs	**P-1 Line Item Number / Title:** SPRNGE / Spacelift Range System Space

ID Code (A=Service Ready, B=Not Service Ready): A	Program Elements for Code B Items: 0305182F	Other Related Program Elements: N/A

Line Item MDAP/MAIS Code: N/A

Resource Summary	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	To Complete	Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	16.666	120.785	113.874	117.637	0.000	117.637	131.140	115.298	111.621	113.714	-	840.735
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	16.666	120.785	113.874	117.637	0.000	117.637	131.140	115.298	111.621	113.714	-	840.735
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**16.666**	**120.785**	**113.874**	**117.637**	**0.000**	**117.637**	**131.140**	**115.298**	**111.621**	**113.714**	**-**	**840.735**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Flyaway Unit Cost *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-

Description:

The Spacelift Range System (SLRS), also known as the Launch and Test Range System (LTRS), provides public safety and assured access to space. LTRS operates at the Eastern Range (ER) at Patrick AFB/ Cape Canaveral AFS, FL and the Western Range (WR) at Vandenberg AFB, CA. LTRS provides tracking, telemetry, communications, flight safety, and other capabilities to support launch of national security space (NSS), civil and commercial space payloads, Intercontinental and Sea Launched ballistic missile and missile defense evaluations, and aeronautical and guided weapon tests. LTRS enables national security, civil, and commercial spacelift operations to be conducted safely. Together with national security space launch capability, LTRS provides assured access to space for the nation. The ER and WR are designated as Department of Defense Major Range and Test Facility Bases (MRTFB). LTRS is comprised of twelve subsystems that together provide this capability to the ranges. The Range Safety and Command Destruct subsystems provide the capability to destroy an errant rocket, if necessary to protect public safety. These subsystems rely on the Telemetry, Radar, and Optics subsystems to provide tracking data. The Weather and Surveillance subsystems allow range operators and customers to determine if conditions are safe for launch. The Communications, Data Handling, and Timing & Sequencing subsystems ensure critical data is expeditiously routed from remote sensors (e.g., radars, optics) to range operators and customers. Finally, the Planning and Scheduling subsystem ensures all assets are available when needed for a launch or test operation. The Air Force prioritizes procurement funds to ensure aging range equipment is modernized to support mission requirements. Sustainment trends are continuously analyzed and assessed across all twelve subsystems and procurement funds are used to modernize the most critical mission equipment and procure replacement components.

1) LTRS Interim Supply Support: Provides peculiar and common support material, required re-procurement data, and interim supply support management.

2) LTRS Support Services: FFRDC mission assurance activities ensure all twelve subsystems are compatible with mission rules and do not pose a risk to safe and cost-effective satellite launches. Funds are also used for Systems Engineering and Integration (SE&I) to ensure baseline documentation and modernization activities remain synchronized with the sustainment baseline.

3) LTRS Commodity Procurement: The Air Force will use various contract vehicles to procure, configure, install and checkout replacement commercial-off-the-shelf (COTS) commodity equipment to address the highest priority requirements. Obsolescence and sustainment "worst actors" in all twelve subsystems are prioritized annually in order of their criticality to the mission; priority is driven by likelihood of causing a launch delay/scrub.

4) Range Communications Facility (RCF): Relocate communications capabilities from the Eastern Range XY building to a new RCF, resolving building degradation, code non-compliance, and high risk off loading. The Air Force will either move existing equipment or procure new COTS equipment if necessary, to meet system requirements and minimize impacts to scheduled launches.

5) Range Command Destruct Modernization (RCDM): Modernizes the Eastern Range Command Destruct Systems. The Range Command Destruct modernization will provide the capability to

Exhibit P-40, Budget Line Item Justification: PB 2019 Air Force		Date: February 2018
Appropriation / Budget Activity / Budget Sub Activity: 3021F: Space Procurement, Air Force / BA 01: Space Procurement, Air Force / BSA 1: Space Programs	P-1 Line Item Number / Title: SPRNGE / Spacelift Range System Space	
ID Code (A=Service Ready, B=Not Service Ready): A	Program Elements for Code B Items: 0305182F	Other Related Program Elements: N/A
Line Item MDAP/MAIS Code: N/A		

use a new secure Command Destruct code, the Enhanced Flight Termination System (EFTS), mandated by the NSA for cyber security on the Eastern Range. The Eastern Range Command Destruct system will replace a sustainment "worst actor" that has been the cause of an expensive launch scrub as well as several near scrubs.

6) Modernization of Eastern Range Network (MEN): Upgrades the communications subsystem on the Eastern Range from outdated Asynchronous Transfer Mode (ATM) technology to Internet Protocol (IP) version 4/6 (IPV4/IPV6). MEN resolves obsolescence issues facing the program starting in FY 2020, addresses high-priority sustainment issues, and provides improved cyber security for range operations. The contract was awarded as a small business set aside.

7) Western Range Modernization of Network (WMN): Upgrades the communications subsystem on Western Range from Asynchronous Transfer Mode (ATM) technology to an IPv6 based/IPv4 compatible network, resolving obsolescence issues, numerous high-priority sustainment issues, and providing improved cyber security for range operations. The WMN contract was awarded as a small business set aside.

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."

Recapitalization Projects are classified as commodity buys instead of modifications, because they do not change form, fit, function of a fielded system or subsystem. Therefore, associated funding for these commodities is described on a P-5 exhibit.

The FY 2019 funding request was reduced by $14.872 million to account for the availability of prior year execution balances.

Funding for this exhibit is contained in PE 1205182F.

Exhibit P-40, Budget Line Item Justification: PB 2019 Air Force	Date: February 2018
Appropriation / Budget Activity / Budget Sub Activity: 3021F: Space Procurement, Air Force / BA 01: Space Procurement, Air Force / BSA 1: Space Programs	**P-1 Line Item Number / Title:** SPRNGE / Spacelift Range System Space
ID Code (A=Service Ready, B=Not Service Ready): A	**Program Elements for Code B Items:** 0305182F / **Other Related Program Elements:** N/A
Line Item MDAP/MAIS Code: N/A	

Exhibits Schedule					Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/ MAIS Code	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*
P-5	1203182F SPRNGE		A		- / -	- / 60.308	- / 40.756	- / 73.465	- / -	- / 73.465
P-40a	1203182F SPRNGE				- / 15.618	- / 44.424	- / 50.019	- / 6.472	- / 0.000	- / 6.472
P-3a	1 / Modernization of Eastern Range Network (MEN) (Capability Improvement)		B		- / 1.048	- / 7.346	- / 3.000	- / 8.500	- / 0.000	- / 8.500
P-3a	2 / Range Communications Facility (RCF) (Capability Improvement)		B		- / -	- / 8.707	- / 20.099	- / 29.200	- / 0.000	- / 29.200
P-40	**Total Gross/Weapon System Cost**				**- / 16.666**	**- / 120.785**	**- / 113.874**	**- / 117.637**	**- / 0.000**	**- / 117.637**

Exhibits Schedule					FY 2020	FY 2021	FY 2022	FY 2023	To Complete	Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/ MAIS Code	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*
P-5	1203182F SPRNGE		A		- / -	- / -	- / -	- / -	- / -	- / -
P-40a	1203182F SPRNGE				- / 5.596	- / 2.722	- / 0.014	- / 0.000	- / 0.000	- / 124.865
P-3a	1 / Modernization of Eastern Range Network (MEN) (Capability Improvement)		B		- / 0.000	- / 0.000	- / -	- / -	- / -	- / 19.894
P-3a	2 / Range Communications Facility (RCF) (Capability Improvement)		B		- / 45.800	- / 34.600	- / 4.100	- / 4.300	- / -	- / 146.806
P-40	**Total Gross/Weapon System Cost**				**- / 131.140**	**- / 115.298**	**- / 111.621**	**- / 113.714**	**- / -**	**- / 840.735**

*Title represents 1) the Number / Title for Items; 2) the Number / Title [DODIC] for Ammunition; and/or 3) the Number / Title (Modification Type) for Modifications. Title represents the P-40a Title when only the P-40a Summary/Total is shown.

Note: Totals in this Exhibit P-40 set may not be exact or sum exactly due to rounding.

Justification:
Spacelift Range System Space: For LTRS Interim Supply Support, FY 2019 funds will pay for interim supply support, to include supplies and associated interim supply support management. For LTRS SUPPORT SERVICES, FY 2019 funds pay for FFRDC mission assurance activities to ensure all twelve subsystems are compatible with mission rules and do not pose a risk to safe and cost-effective satellite launches. Funds are also used for Enterprise SE&I to ensure baseline documentation and modernization activities remain synchronized with the sustainment baseline. LTRS Commodity Procurement (P40a) FY 2019 funds procure the most urgently needed capital equipment replacements for items that exceed the O&M dollar threshold.

MEN, WMN, RCDM, and RCF (P-3As): FY 2019 funds for these modifications are required to enable the safe conduct of national security, civil, and commercial launches at the Eastern and Western Ranges. Further, they ensure continued support to test range customers.

FY 2019 funds will continue program office support and other related support activities. Rapidly respond to implement system resiliency and situational awareness necessary to operate in the contested space domain. These activities may include, but are not limited to studies, technical analysis, prototyping, etc.

Exhibit P-5, Cost Analysis: PB 2019 Air Force		Date: February 2018
Appropriation / Budget Activity / Budget Sub Activity: 3021F / 01 / 1	**P-1 Line Item Number / Title:** SPRNGE / Spacelift Range System Space	**Item Number / Title [DODIC]:** 1203182F SPRNGE
ID Code (A=Service Ready, B=Not Service Ready) : A	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	-	60.308	40.756	73.465	-	73.465
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	-	60.308	40.756	73.465	-	73.465
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**-**	**60.308**	**40.756**	**73.465**	**-**	**73.465**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)						
Initial Spares *($ in Millions)*	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Millions)*	-	-	-	-	-	-

Note: Subtotals or Totals in this Exhibit P-5 may not be exact or sum exactly due to rounding.

Cost Elements	Prior Years			FY 2017			FY 2018			FY 2019 Base			FY 2019 OCO			FY 2019 Total		
	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)
Hardware - 1203182F SPRNGE Cost																		
Non Recurring Cost																		
Commodities Procurement	-	-	-	-	-	25.086	-	-	3.011	-	-	33.893	-	-	-	-	-	33.893
Subtotal: Non Recurring Cost	-	-	-	-	-	*25.086*	-	-	*3.011*	-	-	*33.893*	-	-	-	-	-	*33.893*
Subtotal: Hardware - 1203182F SPRNGE Cost	**-**	**-**	**-**	**-**	**-**	***25.086***	**-**	**-**	***3.011***	**-**	**-**	***33.893***	**-**	**-**	**-**	**-**	**-**	***33.893***
Logistics - Logistics End Item Cost																		
Recurring Cost																		
INTERIM SUPPLY SUPPORT MATERIAL (PARTS/SUPPLIES)	-	-	-	-	-	4.152	-	-	4.121	-	-	4.596	-	-	-	-	-	4.596
INTERIM SUPPLY SUPPORT SERVICES/LABOR	-	-	-	-	-	1.675	-	-	1.725	-	-	1.777	-	-	-	-	-	1.777
SLRS ENTERPRISE SYSTEMS ENGINEERING AND INTEGRATION	-	-	-	-	-	0.000	-	-	0.000	-	-	-	-	-	-	-	-	-
TECHNICAL MISSION ANALYSIS	-	-	-	-	-	9.232	-	-	9.252	-	-	9.529	-	-	-	-	-	9.529
TEST & EVALUATION (WS)	-	-	-	-	-	0.888	-	-	0.534	-	-	-	-	-	-	-	-	-
ENTERPRISE SYSTEMS	-	-	-	-	-	10.443	-	-	12.794	-	-	15.133	-	-	-	-	-	15.133

Exhibit P-5, Cost Analysis: PB 2019 Air Force		Date: February 2018
Appropriation / Budget Activity / Budget Sub Activity: 3021F / 01 / 1	P-1 Line Item Number / Title: SPRNGE / Spacelift Range System Space	Item Number / Title [DODIC]: 1203182F SPRNGE
ID Code (A=Service Ready, B=Not Service Ready) : A	MDAP/MAIS Code:	

Note: Subtotals or Totals in this Exhibit P-5 may not be exact or sum exactly due to rounding.

Cost Elements	Prior Years			FY 2017			FY 2018			FY 2019 Base			FY 2019 OCO			FY 2019 Total		
	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)
ENGINEERING AND INTEGRATION																		
Subtotal: Recurring Cost	-	-	-	-	-	*26.390*	-	-	*28.426*	-	-	*31.035*	-	-	-	-	-	*31.035*
Subtotal: Logistics - Logistics End Item Cost	**-**	**-**	**-**	**-**	**-**	***26.390***	**-**	**-**	***28.426***	**-**	**-**	***31.035***	**-**	**-**	**-**	**-**	**-**	***31.035***
Support - Support End Item Cost																		
FFRDC	-	-	-	-	-	3.119	-	-	2.995	-	-	3.086	-	-	-	-	-	3.086
ADVISORY AND ASSISTANCE SERVICES (A&AS)	-	-	-	-	-	2.715	-	-	2.692	-	-	2.297	-	-	-	-	-	2.297
OTHER SUPPORT	-	-	-	-	-	2.998	-	-	3.632	-	-	3.154	-	-	-	-	-	3.154
Subtotal: Support - Support End Item Cost	**-**	**-**	**-**	**-**	**-**	***8.832***	**-**	**-**	***9.319***	**-**	**-**	***8.537***	**-**	**-**	**-**	**-**	**-**	***8.537***
Gross/Weapon System Cost	**-**	**-**	**-**	**-**	**-**	**60.308**	**-**	**-**	**40.756**	**-**	**-**	**73.465**	**-**	**-**	**-**	**-**	**-**	**73.465**

Remarks:
- Unit quantities and costs vary widely for multiple types and configurations of equipment being procured under modernization and sustainment project cost elements each fiscal year.

Exhibit P-40a, Budget Item Justification For Aggregated Modification Items: PB 2019 Air Force		Date: February 2018
Appropriation / Budget Activity / Budget Sub Activity: 3021F / 01 / 1	P-1 Line Item Number / Title: SPRNGE / Spacelift Range System Space	Aggregated Modification Items Title: 1203182F SPRNGE

Item Number / Title	ID CD	MDAP/ MAIS Code	Prior Years			FY 2017			FY 2018			FY 2019 Base			FY 2019 OCO			FY 2019 Total		
			Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)
02-WMN / Western Range Modernization of Network (WMN)			-	-	12.779	-	-	39.727	-	-	7.892	-	-	3.472	-	-	-	-	-	3.472
03-RCDM / Range Command Destruct Modernization (RCDM)			-	-	2.839	-	-	4.697	-	-	42.127	-	-	3.000	-	-	-	-	-	3.000
Total			**-**	**-**	**15.618**	**-**	**-**	**44.424**	**-**	**-**	**50.019**	**-**	**-**	**6.472**	**-**	**-**	**0.000**	**-**	**-**	**6.472**

Item Number / Title	ID CD	MDAP/ MAIS Code	FY 2020			FY 2021			FY 2022			FY 2023			To Complete			Total Cost		
			Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)
02-WMN / Western Range Modernization of Network (WMN)			-	-	3.251	-	-	1.384	-	-	0.014	-	-	-	-	-	-	-	-	68.519
03-RCDM / Range Command Destruct Modernization (RCDM)			-	-	2.345	-	-	1.338	-	-	-	-	-	-	-	-	-	-	-	56.346
Total			**-**	**-**	**5.596**	**-**	**-**	**2.722**	**-**	**-**	**0.014**	**-**	**-**	**0.000**	**-**	**-**	**0.000**	**-**	**-**	**124.865**

Note: Subtotals or Totals in this Exhibit P-40a may not be exact or sum exactly, due to rounding.

Modification Information:

Item Number / Title	Models of Systems Affected	Modification Type
02-WMN / Western Range Modernization of Network (WMN)	Spacelift Range System Space	Capability Improvement
03-RCDM / Range Command Destruct Modernization (RCDM)	Spacelift Range System Space	Reliability & Maintainability

Exhibit P-3a, Individual Modification: PB 2019 Air Force		Date: February 2018
Appropriation / Budget Activity / Budget Sub Activity: 3021F / 01 / 1	**P-1 Line Item Number / Title:** SPRNGE / Spacelift Range System Space	**Modification Number / Title:** 1 / Modernization of Eastern Range Network (MEN)
ID Code (A=Service Ready, B=Not Service Ready) : B		**MDAP/MAIS Code:**

Resource Summary	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	To Complete	Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	1.048	7.346	3.000	8.500	0.000	8.500	0.000	0.000	-	-	-	19.894
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	1.048	7.346	3.000	8.500	0.000	8.500	0.000	0.000	-	-	-	19.894
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**1.048**	**7.346**	**3.000**	**8.500**	**0.000**	**8.500**	**0.000**	**0.000**	**-**	**-**	**-**	**19.894**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-

Description:

Modernized Eastern Network (MEN): upgrade the communications subsystem on the Eastern range from Asynchronous Transfer Mode (ATM) technology to today's standard of IPV4/IPV6, resolving obsolescence issues, numerous sustainment issues, and providing improved cyber security for range operations. The contract was awarded as a small business set aside.

Milestone/Development Status

Post Milestone B - Engineering and Manufacturing Development

Exhibit P-3a, Individual Modification: PB 2019 Air Force		Date: February 2018
Appropriation / Budget Activity / Budget Sub Activity: 3021F / 01 / 1	**P-1 Line Item Number / Title:** SPRNGE / Spacelift Range System Space	**Modification Number / Title:** 1 / Modernization of Eastern Range Network (MEN)
ID Code (A=Service Ready, B=Not Service Ready) : B	**MDAP/MAIS Code:**	
Models of Systems Affected: Spacelift Range System Space	**Modification Type:** Capability Improvement	**Related RDT&E PEs:**

Financial Plan	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	To Complete	Total
	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*
Procurement												
Modification Item 1 of 1: Modernization of Eastern Range Network (MEN)												
B Kits												
Recurring												
Modernization of Eastern Range Network (MEN):EQUIPMENT Group B (Active)	1 / 1.048	1 / 7.346	1 / 3.000	1 / 8.500	- / -	1 / 8.500	- / -	- / -	- / -	- / -	- / -	4 / 19.894
Subtotal: Recurring	*- / 1.048*	*- / 7.346*	*- / 3.000*	*- / 8.500*	*- / -*	*- / 8.500*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 19.894*
Subtotal: Modernization of Eastern Range Network (MEN)	*- / 1.048*	*- / 7.346*	*- / 3.000*	*- / 8.500*	*- / -*	*- / 8.500*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 19.894*
Subtotal: Procurement, All Modification Items	*- / 1.048*	*- / 7.346*	*- / 3.000*	*- / 8.500*	*- / -*	*- / 8.500*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 19.894*
Installation												
Modification Item 1 of 1: Modernization of Eastern Range Network (MEN)	1 / 0.000	1 / 0.000	1 / 0.000	1 / 0.000	- / -	1 / 0.000	- / -	- / -	- / -	- / -	- / -	4 / 0.000
Subtotal: Installation	*1 / -*	*1 / -*	*1 / -*	*1 / -*	*- / -*	*1 / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*4 / -*
Total												
Total Cost (Procurement + Support + Installation)	**1.048**	**7.346**	**3.000**	**8.500**	**0.000**	**8.500**	**0.000**	**0.000**	**-**	**-**	**-**	**19.894**

Exhibit P-3a, Individual Modification: PB 2019 Air Force		Date: February 2018
Appropriation / Budget Activity / Budget Sub Activity: 3021F / 01 / 1	**P-1 Line Item Number / Title:** SPRNGE / Spacelift Range System Space	**Modification Number / Title:** 1 / Modernization of Eastern Range Network (MEN)

ID Code (A=Service Ready, B=Not Service Ready) : B | **MDAP/MAIS Code:**

Modification Item 1 of 1: Modernization of Eastern Range Network (MEN)

Manufacturer Information

Manufacturer Name: Phacil, Inc.	Manufacturer Location: Alexandria, VA
Administrative Leadtime *(in Months)*: 0	Production Leadtime *(in Months)*: 0

Dates	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023
Contract Dates							
Delivery Dates							

Installation Information

Method of Implementation: Contract Field Team

Installation Cost	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	To Complete	Total
	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*
Prior Years	1 / 0.000	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	1 / 0.000
FY 2017	- / -	1 / 0.000	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	1 / 0.000
FY 2018	- / -	- / -	1 / 0.000	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	1 / 0.000
FY 2019	- / -	- / -	- / -	1 / 0.000	- / -	1 / 0.000	- / -	- / -	- / -	- / -	- / -	1 / 0.000
FY 2020	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	1 / 0.000	1 / 0.000	1 / 0.000	1 / 0.000	- / -	1 / 0.000	- / -	- / -	- / -	- / -	- / -	4 / 0.000

Installation Schedule

	PYS	FY 2017				FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	1	-	-	-	1	-	-	-	1	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	4
Out	1	-	-	-	1	-	-	-	1	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	4

Exhibit P-3a, Individual Modification: PB 2019 Air Force		Date: February 2018
Appropriation / Budget Activity / Budget Sub Activity: 3021F / 01 / 1	**P-1 Line Item Number / Title:** SPRNGE / Spacelift Range System Space	**Modification Number / Title:** 2 / Range Communications Facility (RCF)
ID Code (A=Service Ready, B=Not Service Ready) : B		**MDAP/MAIS Code:**

Resource Summary	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	To Complete	Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	-	8.707	20.099	29.200	0.000	29.200	45.800	34.600	4.100	4.300	-	146.806
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	-	8.707	20.099	29.200	0.000	29.200	45.800	34.600	4.100	4.300	-	146.806
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**-**	**8.707**	**20.099**	**29.200**	**0.000**	**29.200**	**45.800**	**34.600**	**4.100**	**4.300**	**-**	**146.806**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-

Description:

Range Communications Facility (RCF): Relocate communications capabilities from the Eastern Range XY Building to a new RCF, resolving building degradation, code non-compliance, and high risk of flooding.

NOTE: Procurement totals include all kits and installation costs.

Milestone/Development Status

Post Milestone C - Production and Development Phase

Exhibit P-3a, Individual Modification: PB 2019 Air Force		Date: February 2018
Appropriation / Budget Activity / Budget Sub Activity: 3021F / 01 / 1	**P-1 Line Item Number / Title:** SPRNGE / Spacelift Range System Space	**Modification Number / Title:** 2 / Range Communications Facility (RCF)
ID Code (A=Service Ready, B=Not Service Ready) : B		**MDAP/MAIS Code:**
Models of Systems Affected: Spacelift Range System Space	**Modification Type:** Capability Improvement	**Related RDT&E PEs:**

Financial Plan	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	To Complete	Total
	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*
Procurement												
Modification Item 1 of 1: Range Communication Facility (RCF)												
B Kits												
Recurring												
Range Communication Facility (RCF):EQUIPMENT Group B (Active)	- / -	1 / 8.707	1 / 20.099	1 / 29.200	- / -	1 / 29.200	1 / 45.800	1 / 34.600	1 / 4.100	1 / 4.300	- / -	7 / 146.806
Subtotal: Recurring	- / -	- / *8.707*	- / *20.099*	- / *29.200*	- / -	- / *29.200*	- / *45.800*	- / *34.600*	- / *4.100*	- / *4.300*	- / -	- / *146.806*
Subtotal: Range Communication Facility (RCF)	- / -	- / *8.707*	- / *20.099*	- / *29.200*	- / -	- / *29.200*	- / *45.800*	- / *34.600*	- / *4.100*	- / *4.300*	- / -	- / *146.806*
Subtotal: Procurement, All Modification Items	- / -	- / *8.707*	- / *20.099*	- / *29.200*	- / -	- / *29.200*	- / *45.800*	- / *34.600*	- / *4.100*	- / *4.300*	- / -	- / *146.806*
Installation												
Subtotal: Installation	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total												
Total Cost (Procurement + Support + Installation)	**-**	**8.707**	**20.099**	**29.200**	**0.000**	**29.200**	**45.800**	**34.600**	**4.100**	**4.300**	**-**	**146.806**

Exhibit P-3a, Individual Modification: PB 2019 Air Force		Date: February 2018
Appropriation / Budget Activity / Budget Sub Activity: 3021F / 01 / 1	**P-1 Line Item Number / Title:** SPRNGE / Spacelift Range System Space	**Modification Number / Title:** 2 / Range Communications Facility (RCF)
ID Code (A=Service Ready, B=Not Service Ready) : B		**MDAP/MAIS Code:**

Modification Item 1 of 1: Range Communication Facility (RCF)

Manufacturer Information

Manufacturer Name: Unknown	Manufacturer Location: Unknown
Administrative Leadtime *(in Months)*: 0	Production Leadtime *(in Months)*: 0

Dates	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023
Contract Dates							
Delivery Dates							

Installation Information

Method of Implementation (Organic): Org/Intermediate	**Installation Quantity:** 0

Exhibit P-40, Budget Line Item Justification: PB 2019 Air Force	Date: February 2018
Appropriation / Budget Activity / Budget Sub Activity: 3021F: Space Procurement, Air Force / BA 02: Spares / BSA 2: SSpares	**P-1 Line Item Number / Title:** SSPARE / Initial Spares/Repair Parts
ID Code (A=Service Ready, B=Not Service Ready):	**Program Elements for Code B Items:** N/A — **Other Related Program Elements:** N/A
Line Item MDAP/MAIS Code: N/A	

Resource Summary	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	To Complete	Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	-	20.606	18.709	21.812	0.000	21.812	7.263	1.273	1.299	1.322	-	72.284
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	-	20.606	18.709	21.812	0.000	21.812	7.263	1.273	1.299	1.322	-	72.284
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**-**	**20.606**	**18.709**	**21.812**	**0.000**	**21.812**	**7.263**	**1.273**	**1.299**	**1.322**	**-**	**72.284**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Flyaway Unit Cost *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-

Description:

Initial Spares consist of reparable components, assemblies, subassemblies, and consumable items required as initial stock (including readiness spares package requirements) in support of space acquisition programs. Requirements are determined by applying established factors against the acquisition cost of the end items. The factors are based on historical data of similar equipment, employment/deployment concepts, production schedules, and other related information.

This line contains funding for the following Major Defense Acquisition Program (MDAP):
FAB-T Inc 1, 199
SBIRS Baseline, 399

The funding for the following programs was transferred from the Other Procurement, Air Force appropriation to the Space Procurement, Air Force appropriation beginning in FY17:

Family of Advanced BLoS Terminals (FAB-T)
Information Systems Security Program
NAVSTAR Global Positioning System (Space and Control Segments)
Space Situation Awareness Operations

Exhibit P-40, Budget Line Item Justification: PB 2019 Air Force		Date: February 2018
Appropriation / Budget Activity / Budget Sub Activity: 3021F: Space Procurement, Air Force / BA 02: Spares / BSA 2: SSpares	P-1 Line Item Number / Title: SSPARE / Initial Spares/Repair Parts	
ID Code (A=Service Ready, B=Not Service Ready):	Program Elements for Code B Items: N/A	Other Related Program Elements: N/A
Line Item MDAP/MAIS Code: N/A		

Exhibits Schedule					Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/ MAIS Code	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*
P-18	Initial Spares/Repair Parts				- / -	- / 20.606	- / 18.709	- / 21.812	- / 0.000	- / 21.812
P-40	**Total Gross/Weapon System Cost**				**- / -**	**- / 20.606**	**- / 18.709**	**- / 21.812**	**- / 0.000**	**- / 21.812**

Title represents the P-18 Title for Spares.

Note: Totals in this Exhibit P-40 set may not be exact or sum exactly due to rounding.

Justification:
The FY19 budget supports initial spares for the following programs: Family of Advanced BLoS Terminals (FAB-T), Information Systems Security Program, and NAVSTAR Global Positioning System (Space and Control Segments).

Exhibit P-18, Initial and Replenishment Spare and Repair Parts Justification: PB 2019 Air Force		Date: February 2018
Appropriation / Budget Activity / Budget Sub Activity: 3021F / 02 / 2	**P-1 Line Item Number / Title:** SSPARE / Initial Spares/Repair Parts	**Title:** Initial Spares/Repair Parts

End Item Line Item Number / Name [MDAP/MAIS]	Prior Years ($ M)	FY 2017 ($ M)	FY 2018 ($ M)	FY 2019 Base ($ M)	FY 2019 OCO ($ M)	FY 2019 Total ($ M)
Initial						
BA 02 - Spares						
SSPARE / Family of Advanced BLoS Terminals (FAB-T)	-	12.078	3.598	20.583	0.000	20.583
MGPS00 / Information Systems Security Program	-	0.449	0.802	0.808	0.000	0.808
MC0MSE / NAVSTAR Global Positioning System (Space and Control Segments)	-	0.466	0.417	0.421	0.000	0.421
SPCMOD / Space Situation Awareness Operations	-	7.613	4.873	0.000	0.000	0.000
SPCMOD / Space Based Infrared System (SBIR)	-	0.000	9.019	0.000	0.000	0.000
Subtotal: Initial	**-**	***20.606***	***18.709***	***21.812***	***0.000***	***21.812***
Total Cost (Initial + Replenishment)	**-**	**20.606**	**18.709**	**21.812**	**0.000**	**21.812**

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