Department of Defense
Fiscal Year (FY) 2022 Budget Estimates

May 2021

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) 2022 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.

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Department of the Air Force
FY 2022 President's Budget
Exhibit P-1 FY 2022 President's Budget
Total Obligational Authority
(Dollars in Thousands)

05 May 2021

Appropriation	FY 2020 Actual*	FY 2021 Enacted**	FY 2022 Request
Aircraft Procurement, Air Force	17,550,262	19,985,491	15,727,669
Missile Procurement, Air Force	2,777,558	2,365,953	2,669,811
Space Procurement, Air Force	2,353,383		
Procurement of Ammunition, Air Force	2,535,419	1,336,461	795,168
Procurement, Space Force		2,310,994	2,766,854
Other Procurement, Air Force	25,199,603	23,796,987	25,251,137
Total Department of the Air Force	50,416,225	49,795,886	47,210,639

Department of the Air Force
FY 2022 President's Budget
Exhibit P-1 FY 2022 President's Budget
Total Obligational Authority
(Dollars in Thousands)

05 May 2021

Appropriation: Space Procurement, Air Force

Budget Activity	FY 2020 Actual*	FY 2021 Enacted**	FY 2022 Request
01. Space Procurement, Air Force	2,346,120		
02. Spares	7,263		
Total Space Procurement, Air Force	2,353,383		

P-122BAS: FY 2022 President's Budget (Total Base Published Version), as of May 5, 2021 at 14:47:22

Department of the Air Force
FY 2022 President's Budget
Exhibit P-1 FY 2022 President's Budget
Total Obligational Authority
(Dollars in Thousands)

05 May 2021

Appropriation: 3021F Space Procurement, Air Force

Line No	Item Nomenclature	Ident Code	FY 2020 Actual* Quantity	FY 2020 Actual* Cost	FY 2021 Enacted** Quantity	FY 2021 Enacted** Cost	FY 2022 Request Quantity	FY 2022 Request Cost	Sec
	Budget Activity 01: Space Procurement, Air Force								
	Space Programs								
1	Advanced EHF	A		18,515					U
2	AF Satellite Comm System	A		60,948					U
3	Counterspace Systems	A		5,700					U
4	Family of Beyond Line-of-Sight Terminals	A		24,020					U
5	General Information Tech - Space	A		3,244					U
6	GPSIII Follow On	A	1	389,975					U
7	GPS III Space Segment	A		34,845					U
8	Spaceborne Equip (Comsec)	A		32,031					U
9	MILSATCOM	A		11,096					U
10	Evolved Expendable Launch Veh(Space)	A	4	1,237,635					U
11	SBIR High (Space)	A		226,952					U
12	NUDET Detection System	A		8,918					U
13	Rocket Systems Launch Program	A		11,473					U
14	space fence	A		57,784					U
15	Space Mods	A		106,330					U
16	Spacelift Range System Space	A		116,654					U
	Total Space Procurement, Air Force			2,346,120					

P-122BAS: FY 2022 President's Budget (Total Base Published Version), as of May 5, 2021 at 14:47:22

Department of the Air Force
FY 2022 President's Budget
Exhibit P-1 FY 2022 President's Budget
Total Obligational Authority
(Dollars in Thousands)

05 May 2021

Appropriation: 3021F Space Procurement, Air Force

Line No	Item Nomenclature	Ident Code	FY 2020 Actual* Quantity	FY 2020 Actual* Cost	FY 2021 Enacted** Quantity	FY 2021 Enacted** Cost	FY 2022 Request Quantity	FY 2022 Request Cost	Sec
	Budget Activity 02: Spares								
	SSpares								
17	Spares and Repair Parts	A		7,263					U
	Total Spares			7,263					
	Total Space Procurement, Air Force			2,353,383					

P-122BAS: FY 2022 President's Budget (Total Base Published Version), as of May 5, 2021 at 14:47:22

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

Appropriation 3021F: Space Procurement, Air Force

Appropriation 3021F: Space Procurement, Air Force

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

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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
BES	- Budget Estimate Submission
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
IT	- Information Technology
JUON	- Joint Urgent Operational Need
MAIS	- Major Automated Information System Program
MDAP	- Major Defense Acquisition Program
METS	- Mobile Electronic Test Stations
MYP	- Multiyear Procurement
NAVWAR	- Navigation Warfare
NMC Rate	- Not Mission Capable Rate
OCO	- Overseas Contingency Operations
OT&E	- Operational Test and Evaluation
OWRM	- Other War Reserve Material
PAGEL	- Priced Aerospace Ground Equipment List
PB	- President's Budget
PBR	- Program Budget Review
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	- Rapid Acquisition Authority
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

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 2022 Air Force	Date: May 2021
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: 1206431F
Line Item MDAP/MAIS Code: 261		

Resource Summary	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	To Complete	Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	651.049	18.515	0.000	0.000	-	0.000	-	-	-	-	-	-
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	651.049	18.515	0.000	0.000	-	0.000	-	-	-	-	-	-
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**651.049**	**18.515**	**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)*	-	-	-	-	-	-	-	-	-	-	-	-
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. Additionally, AEHF procurement program element funds the transfer to CCS-C Assurance and Capability Enhancement (CACE) mission unique software and databases for AEHF 6.

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 September 18, 2013. SV-4 successfully launched on October 17, 2018.

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 launched on 8 Aug 2019. SV-6 launched on 26 March 2020.

Space acquisition must respond with speed and agility to emerging adversary threats. Space & Missile Systems Center (SMC) has transformed the organization and implementation of space acquisition to an enterprise approach, maximizing innovation and resiliency, leveraging international, commercial, and mission partnerships, and managing program/project priorities according to an integrated unclassified/ classified enterprise space architecture. Expanding the appropriate acquisition authorities and contract mechanisms to deliver capability sooner, SMC will strategically execute experimentation, prototyping, risk reduction, and other efforts to develop new or repurpose capabilities.

As of the FY 2016 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 FY 2016 and beyond. Total MPAF/SPAF procurement funding is $5,671.877M. Total AEHF SV3 SV4 MPAF/SPAF funds are $3,100.404M. Total AEHF SV5 SV6 MPAF/SPAF program funds are $2,571.483M. FY 2021 $7.823M Procurement, Space Force (PSF) funds for AEHF SV5 SV6 are not included.

Funding for this exhibit is contained in PE 1203604F.

Exhibit P-40, Budget Line Item Justification: PB 2022 Air Force	Date: May 2021
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: 1206431F

Line Item MDAP/MAIS Code: 261

Exhibits Schedule					Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 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 SV5 SV6		A		- / 651.049	- / 18.515	- / -	- / -	- / -	- / -
P-40	**Total Gross/Weapon System Cost**				**- / 651.049**	**- / 18.515**	**- / 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:
N/A.

Exhibit P-5, Cost Analysis: PB 2022 Air Force		Date: May 2021
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 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	651.049	18.515	-	-	-	-
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	651.049	18.515	-	-	-	-
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**651.049**	**18.515**	**-**	**-**	**-**	**-**
(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 2020			FY 2021			FY 2022 Base			FY 2022 OCO			FY 2022 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	-	-	464.231	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Enterprise SE&I	-	-	42.485	-	-	0.800	-	-	-	-	-	-	-	-	-	-	-	-
Technical Mission Analysis	-	-	49.016	-	-	0.700	-	-	-	-	-	-	-	-	-	-	-	-
ACF/IC2 Test Asset Support	-	-	27.270	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Recurring Cost	-	-	*583.002*	-	-	*1.500*	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Space Vehicle - SV5 SV6 Cost	**-**	**-**	***583.002***	**-**	**-**	***1.500***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Checkout and Launch - SV5 SV6 Cost																		
AEHF SV 5-6 Propellant	-	-	3.278	-	-	0.441	-	-	-	-	-	-	-	-	-	-	-	-
AEHF Spectrum Management	-	-	0.500	-	-	0.180	-	-	-	-	-	-	-	-	-	-	-	-
AEHF SV 5-6 Launch Support Services/Launch Readiness	-	-	18.637	-	-	10.069	-	-	-	-	-	-	-	-	-	-	-	-
Command & Control System-Consolidated (CCS-C) Launch Support AEHF 5-6	-	-	4.031	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AEHF SV 5-6 Satellite Transportation for Launch	-	-	1.501	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Exhibit P-5, Cost Analysis: PB 2022 Air Force		Date: May 2021
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 2020			FY 2021			FY 2022 Base			FY 2022 OCO			FY 2022 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	-	-	***27.947***	-	-	***10.690***	-	-	-	-	-	-	-	-	-	-	-	-
Support - SV5 SV6 Cost																		
FFRDC	-	-	11.781	-	-	0.400	-	-	-	-	-	-	-	-	-	-	-	-
A&AS	-	-	27.271	-	-	5.800	-	-	-	-	-	-	-	-	-	-	-	-
Other Support	-	-	1.048	-	-	0.125	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Support - SV5 SV6 Cost	-	-	***40.100***	-	-	***6.325***	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost	-	-	**651.049**	-	-	**18.515**	-	-	-	-	-	-	-	-	-	-	-	-

Remarks:
Total AEHF SV5-6 MPAF/SPAF funds are $2,571.483M.

Exhibit P-40, Budget Line Item Justification: PB 2022 Air Force	Date: May 2021
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, 1203110F	Other Related Program Elements: N/A

Line Item MDAP/MAIS Code: N/A

Resource Summary	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	To Complete	Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	59.992	60.948	0.000	0.000	-	0.000	-	-	-	-	-	-
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	59.992	60.948	0.000	0.000	-	0.000	-	-	-	-	-	-
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**59.992**	**60.948**	**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)*	-	-	-	-	-	-	-	-	-	-	-	-
Flyaway Unit Cost *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-

Description:

In FY2021, P-1 Line Item AFSCOM/AF Satellite Comm System efforts were transferred to Appropriation 3022F, Procurement, Space Force, from Appropriation 3021F due to the creation of a new Appropriation for Space Force.

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 490 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 each Fiscal Year, the AFSCN supported multiple space vehicle emergencies resulting in the preservation of over 4B 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 each Fiscal Year, the AFSCN supports multiple launches delivering over $14B 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, Multi-band & Phased Array and Cybersecurity Operations.

Space acquisition must respond with speed and agility to emerging adversary threats. Space & Missile Systems Center (SMC) has transformed the organization and implementation of space acquisition to an enterprise approach, maximizing innovation and resiliency, leveraging international, commercial, and mission partnerships, and managing program/project priorities according to an integrated unclassified/ classified enterprise space architecture. Expanding the appropriate acquisition authorities and contract mechanisms to deliver capability sooner, SMC will strategically execute experimentation, prototyping, risk reduction, and other efforts to develop new or repurpose capabilities.

Principal efforts include:
AFSCN Studies - provides important analysis through a specified study with a defined deliverable that includes, but is not limited to, facilitating future planning, analyzing architecture alternatives, performing tradeoffs between alternative systems and architectures, and performing cost-benefit analysis.

Exhibit P-40, Budget Line Item Justification: PB 2022 Air Force		Date: May 2021
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, 1203110F	**Other Related Program Elements:** N/A
Line Item MDAP/MAIS Code: N/A		

AFSCN Knowledge-Based Services - provides Information Assurance (IA) and Test and Evaluation (T&E) expertise to evaluate system functionality and submit packages to Certifying Authorities to obtain Authorizations to Operate (ATO) or Interim Authorizations to Test (IATT); streamlines the validation process and enhances the overall effectiveness of the single Space Force Security Control Assessor (SCA); provides Systems Engineering & Integration (SE&I) to integrate new systems and services into SMC programs, gain support for new and on-going efforts in all phases of the acquisition life cycle and standardize systems engineering processes.

AFSCN Services - provides software configuration services for SMC to include updating and maintaining data to support evolving changes to the configuration management and data management practices.

AFSCN Replenishment Spares - This equipment replaces items as they become obsolete which include but are not limited to, high power amplifiers, processors, archival event recorders, router switches, and firewalls, AFSCN Link Projection System (ALPS) equipment, legacy Electronic Scheduling Dissemination (ESD) equipment and Diminishing Manufacturing Sources and Material Shortages (DMSMS), which are at the top of the sustainers "worst actors" list and account for significant maintenance efforts.

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 each Fiscal Year, funds may be used to address Diminishing Manufacturing Sources (DMS) issues, support Enterprise Ground Service (EGS), Commercial Augmentation, Multi-band & Phased Array and cybersecurity operations, and are planned to be used for required radome replacements, Defensive Cyber Operations activities and other Cyber security related projects. Other projects include: Boundary Defense, Electronic Schedule Dissemination (ESD) obsolescence, AFSCN test bed (ATB) replacements, continued cyber defense work, network automation, and Range/Network/Communication obsolescence replacements.

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 all sites. The first two hybrid articles, GTS and HTS, have been operationally accepted. TTS, DGS, VTS, NHS and TCS-A are all on contract. The last article, TCS-B, is scheduled to be awarded in FY 2022. This "hybrid" architecture couples the RBC electronics with existing antennas and normalizes electronics across the network. 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 2026, 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 was completed in FY 2020. The second and third EHPA procurements and deliveries (DGS and VTS) were awarded in FY 2020. The final article (NHS) will be awarded in FY 2021.

Funding for this exhibit contained in PE 1203110SF.

These requirements and modifications support performance of a full financial audit as required by title 10 U.S.C. Chapter 9A, Sec 240-D.

Justification:
N/A

Exhibit P-40, Budget Line Item Justification: PB 2022 Air Force	Date: May 2021
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 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	To Complete	Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	-	5.700	0.000	0.000	-	0.000	-	-	-	-	-	-
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	-	5.700	0.000	0.000	-	0.000	-	-	-	-	-	-
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**-**	**5.700**	**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)*	-	-	-	-	-	-	-	-	-	-	-	-
Flyaway Unit Cost *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-

Description:

In FY2021, P-1 Line Item CTRSPC/Counterspace Systems efforts were transferred to Appropriation 3022, Procurement, Space Force, from Appropriation 3021 due to the creation of a new Appropriation for Space Force.

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.

Bounty Hunter (BH) supports the Defensive Space Control of US systems in several AORs 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. In March 2019, Bounty Hunter was designated as a Program of Record.

Space acquisition must respond with speed and agility to emerging adversary threats. Space & Missile Systems Center (SMC) has transformed the organization and implementation of space acquisition to an enterprise approach, maximizing innovation and resiliency, leveraging international, commercial, and mission partnerships, and managing program/project priorities according to an integrated unclassified/ classified enterprise space architecture. Expanding the appropriate acquisition authorities and contract mechanisms to deliver capability sooner, SMC will strategically execute experimentation, prototyping, risk reduction, and other efforts to develop new or repurpose capabilities.

Funding for this exhibit is contained in PE 1206421F.

Justification:
No procurement funding for Counter Communications System (CCS) in FY20.
Funding in FY20 funds an additional Bounty Hunter system.

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Exhibit P-40, Budget Line Item Justification: PB 2022 Air Force	Date: May 2021
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 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	To Complete	Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	-	24.020	0.000	0.000	-	0.000	-	-	-	-	-	-
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	-	24.020	0.000	0.000	-	0.000	-	-	-	-	-	-
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**-**	**24.020**	**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)*	-	0.057	-	-	-	-	-	-	-	-	-	-
Flyaway Unit Cost *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-

Description:

In FY2021, P-1 Line Item BP23 FBLOST Family Beyond Line of Sight -FoS Appn 3021 efforts were transferred to Appropriation 3022F, Procurement, Space Force, from Appropriation 3021F due to the creation of a new Appropriation for Space Force.

Increased FY21 funding as compared with FY20 funding enables the planned ramp-up in the pace of CPT installation and fielding activities across all CPT platforms. This increased fielding pace enables IOC in 3QFY21.

Additionally, FAB-T CPT will continue to pursue activities that ensure CPT terminal interoperability with the full AEHF satellite constellation, conduct site surveys, perform install activities, provide Interim Contractor Support for the existing fielded terminals, depot activation activities, and operator training. Activities may also include, but are not limited to, program office support, studies, technical analysis, prototyping, training, etc.

In FY 2021, PNVC will being procuring Baseband Kit enclosures for mobile users, and any remaining PNVC equipment required until fielding is complete.

Exhibit P-40, Budget Line Item Justification: PB 2022 Air Force	Date: May 2021
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 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 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		A		- / -	- / 24.020	- / 0.000	- / 0.000	- / -	- / 0.000
P-40	**Total Gross/Weapon System Cost**				**- / -**	**- / 24.020**	**- / 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:
N/A

Exhibit P-5, Cost Analysis: PB 2022 Air Force		Date: May 2021
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 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	-	24.020	0.000	0.000	-	0.000
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	-	24.020	0.000	0.000	-	0.000
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**-**	**24.020**	**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)*	-	0.057	0.000	-	-	-
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 2020			FY 2021			FY 2022 Base			FY 2022 OCO			FY 2022 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)	-	-	-	-	-	10.645	-	-	-	-	-	-	-	-	-	-	-	-
Technical Mission Analysis	-	-	-	-	-	5.800	-	-	-	-	-	-	-	-	-	-	-	-
Enterprise SE&I	-	-	-	-	-	1.400	-	-	-	-	-	-	-	-	-	-	-	-
GFE	-	-	-	-	-	1.200	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Recurring Cost	-	-	-	-	-	*19.045*	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Hardware - 0303601F MILSATCOM Space; 0303001F FBLOST Cost	**-**	**-**	**-**	**-**	**-**	***19.045***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Hardware - PNVC Cost																		
Recurring Cost																		
BBKs	-	-	-	-	-	1.915	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Recurring Cost	-	-	-	-	-	*1.915*	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Hardware - PNVC Cost	**-**	**-**	**-**	**-**	**-**	***1.915***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Support - 0303001F FBLOST Cost																		
FAB-T A&AS	-	-	-	-	-	1.200	-	-	-	-	-	-	-	-	-	-	-	-
FAB-T Other Support	-	-	-	-	-	1.860	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Support - 0303001F FBLOST Cost	**-**	**-**	**-**	**-**	**-**	***3.060***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**

Exhibit P-5, Cost Analysis: PB 2022 Air Force		Date: May 2021
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 2020			FY 2021			FY 2022 Base			FY 2022 OCO			FY 2022 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	-	-	-	-	-	24.020	-	-	0.000	-	-	0.000	-	-	-	-	-	0.000

Remarks:
This P-Doc incorporates three Program Elements for FAB-T/PNVC:
PE 030601F Prior years through FY 2015; PE 0303001F - FY 2016 and FY 2017; and 1203001F - FY 2018 and out. Prior year numbers can be found in these Exhibits.

Exhibit P-40, Budget Line Item Justification: PB 2022 Air Force	Date: May 2021
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 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	To Complete	Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	-	3.244	0.000	0.000	-	0.000	-	-	-	-	-	-
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	-	3.244	0.000	0.000	-	0.000	-	-	-	-	-	-
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**-**	**3.244**	**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)*	-	-	-	-	-	-	-	-	-	-	-	-
Flyaway Unit Cost *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-

Description:

In FY2021, P-1 Line Item GNRLIT/General Information Technology efforts were transferred to Appropriation 3022, Procurement, Space Force, from Appropriation 3021 due to the creation of a new Appropriation for Space Force.

PE 1203173F Space and Missile Test and Evaluation Center (SAMTEC)
The Research and Development Space and Missile Operations (RDSMO) program, executed by the Innovation and Prototyping Directorate at Kirtland AFB (KAFB), NM, conducts space and missile Research and Developmental Test and Evaluation (RDT&E) and Initial Operational Test and Evaluation (IOT&E) in support of prototype, experimental, demonstration, and operational satellites at the RDT&E Support Complex (RSC) and Mobile Range (MRF) at KAFB and at Schriever AFB (SAFB), CO. The RDSMO program develops, acquires, delivers, integrates, tests, operates, and sustains the Multi-Mission Satellite Operations Center (MMSOC) satellite command and control (C2) Ground System Enterprise (GSE) and fixed/deployable telemetry, tracking, and commanding (TT&C) antenna systems in support of AF and DoD missions and transitions designated satellite missions to the operational command upon user needs. In addition RDSMO supports the deployment and sustainment of Enterprise Ground Services (EGS) in multiple locations as US Space Force systems transition to an Enterprise-based ground C2. Funds in the General Information Technology (Space) line procures Information Technology products to support RDSMO.

Space acquisition must respond with speed and agility to emerging adversary threats. Space & Missile Systems Center (SMC) has transformed the organization and implementation of space acquisition to an enterprise approach, maximizing innovation and resiliency, leveraging international, commercial, and mission partnerships, and managing program/project priorities according to an integrated unclassified/ classified enterprise space architecture. Expanding the appropriate acquisition authorities and contract mechanisms to deliver capability sooner, SMC will strategically execute experimentation, prototyping, risk reduction, and other efforts to develop new or repurpose capabilities.

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.

Exhibit P-40, Budget Line Item Justification: PB 2022 Air Force		Date: May 2021
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		

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 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.

Justification:
PE 1203173F SAMTEC
N/A

PE 1203174F SIIRTD
N/A

Exhibit P-40, Budget Line Item Justification: PB 2022 Air Force	Date: May 2021
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:** GPS03C / GPSIII Follow On

ID Code (A=Service Ready, B=Not Service Ready): B	Program Elements for Code B Items: 1203269F	Other Related Program Elements: 1203265F

Line Item MDAP/MAIS Code: 590

Resource Summary	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	To Complete	Total
Procurement Quantity *(Units in Each)*	-	1	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	-	389.975	0.000	0.000	-	0.000	-	-	-	-	-	-
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	-	389.975	0.000	0.000	-	0.000	-	-	-	-	-	-
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**-**	**389.975**	**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)*	-	-	-	-	-	-	-	-	-	-	-	-
Flyaway Unit Cost *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Millions)*	-	389.975	-	-	-	-	-	-	-	-	-	-

Description:

In FY2021, P-1 Line Item GPS03C/GPSIII Follow On efforts were transferred to Appropriation 3022, Procurement, Space Force, from Appropriation 3021 due to the creation of a new Appropriation for Space Force.

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) Air Force (AF) funding for GPS III Follow-On (GPS IIIF), including development and acquisition of Space Vehicles (SVs) 11-12, is in PE 1203269F, Project 653170, GPS IIIF. The satellites broadcast high-accuracy data using precisely synchronized signals that are received and processed by user equipment installed in military platforms. The user 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 IIIF delivers GPS III satellites beyond the first ten SVs being delivered by the GPS III program (funded in PE 1203265F GPS III Space Segment). The GPS IIIF satellites maintain the same capabilities as the GPS III satellites, but also deliver significant enhancements to include: backward compatibility, unified S-Band (USB) interface compliance, integration of hosted payloads including a redesigned USNDS payload, Laser Retro-reflector Arrays (LRAs), Search and Rescue/GPS (SAR/GPS) and Energetic Charged Particles (ECP) sensor, and Regional Military Protection (RMP) capabilities that provide the ability to deliver high-power regional Military Code (M-Code) signals in specific areas of intended effect. Implementation of RMP into the GPS Enterprise requires integration with the ground and user segments, executed by the GPS Next Generation Operational Control System (OCX) and Military GPS User Equipment (MGUE) programs, respectively. The SAR/GPS payload provided by Canada fills a validated National Search and Rescue Committee requirement to provide an enduring, space-based distress alerting capability to detect, locate, and relay distress alerts to fulfill its responsibilities under international agreements for Search and

Exhibit P-40, Budget Line Item Justification: PB 2022 Air Force		Date: May 2021
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: GPS03C / GPSIII Follow On	
ID Code (A=Service Ready, B=Not Service Ready): B	Program Elements for Code B Items: 1203269F	Other Related Program Elements: 1203265F
Line Item MDAP/MAIS Code: 590		

Rescue. The LRA, built by the Naval Research Lab (NRL), is a passive reflector that improves accuracy and provides better ephemeris data. National Geospatial-Intelligence Agency (NGA) funds the integration costs of the LRA.

In December 2017, The Principal Deputy Assistant Secretary of the Air Force (Acquisition & Logistics) declared the GPS IIIF program a new start beginning in Fiscal Year (FY) 2019 and consistent with the FY 2016 National Defense Authorization Act (NDAA), the program was categorized as an ACAT 1B Major Defense Acquisition Program (MDAP) with the Service Acquisition Executive (SAE) as the Milestone Decision Authority (MDA). During this time, the MDA approved the second phase of the two-phased GPS IIIF acquisition strategy. Executed using funds in PE 1203265F, GPS III Space Segment, the Phase 1 Production Readiness Feasibility Assessments conducted during FY 2016 - FY 2017 provided data and insight into contractors' GPS satellite production designs with emphasis on a mature navigation payload and production-ready designs. Phase 1 results affirmed the viability of a competitive approach for Phase 2. The Phase 2 strategy directed the Air Force to conduct a full-and-open competition for GPS IIIF SVs and specified the use of RDT&E funds to deliver SVs 11-12 and conduct associated Non-Recurring Engineering (NRE). Milestone C Certification was achieved in July 2020, and procurement of SV 13+ is planned via annual contract options exercise using Space Procurement, Air Force (SPAF) 3021 and Procurement, Space Force (PSF) 3022 funds consistent with full-funding policy under an annual-buy approach.

Space acquisition must respond with speed and agility to emerging adversary threats. Space & Missile Systems Center (SMC) has transformed the organization and implementation of space acquisition to an enterprise approach, maximizing innovation and resiliency, leveraging international, commercial, and mission partnerships, and managing program/project priorities according to an integrated unclassified/ classified enterprise space architecture. Expanding the appropriate acquisition authorities and contract mechanisms to deliver capability sooner, SMC will strategically execute experimentation, prototyping, risk reduction, and other efforts to develop new or repurpose capabilities.

This PE may include necessary civilian pay expenses required to manage, execute, and deliver GPS III Follow-On weapon system capability. The use of such program funds is in addition to the civilian pay expenses budgeted in PEs 1206392F and 1206398F.

FY 2020 and Prior Years funding for this exhibit is contained in PE 1203269F. Beginning in FY 2021, funding has been transferred to PE 1203269SF.

Exhibit P-40, Budget Line Item Justification: PB 2022 Air Force	Date: May 2021
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:** GPS03C / GPSIII Follow On

ID Code (A=Service Ready, B=Not Service Ready): B	Program Elements for Code B Items: 1203269F	Other Related Program Elements: 1203265F

Line Item MDAP/MAIS Code: 590

Exhibits Schedule					Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 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	GPSIII Follow On	P-5a, P-21	B		- / -	1 / 389.975	- / 0.000	- / 0.000	- / -	- / 0.000
P-40	**Total Gross/Weapon System Cost**				**- / -**	**1 / 389.975**	**- / 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:
N/A

Exhibit P-5, Cost Analysis: PB 2022 Air Force		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 3021F / 01 / 1	**P-1 Line Item Number / Title:** GPS03C / GPSIII Follow On	**Item Number / Title [DODIC]:** GPSIII Follow On
ID Code (A=Service Ready, B=Not Service Ready) : B	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Procurement Quantity *(Units in Each)*	-	1	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	-	389.975	0.000	0.000	-	0.000
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	-	389.975	0.000	0.000	-	0.000
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**-**	**389.975**	**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)*	-	389.975	-	-	-	-

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

Cost Elements	Prior Years			FY 2020			FY 2021			FY 2022 Base			FY 2022 OCO			FY 2022 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 - GPS IIIF SPAF Cost																		
Recurring Cost																		
GPS IIIF(†)	-	-	-	354.413	1	354.413	-	-	-	-	-	0.000	-	-	-	-	-	0.000
GPS IIIF Technical Mission Analysis	-	-	-	-	-	4.894	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Recurring Cost	-	-	-	-	-	*359.307*	-	-	-	-	-	*0.000*	-	-	-	-	-	*0.000*
Subtotal: Space Vehicle - GPS IIIF SPAF Cost	**-**	**-**	**-**	**-**	**-**	***359.307***	**-**	**-**	**-**	**-**	**-**	***0.000***	**-**	**-**	**-**	**-**	**-**	***0.000***
Support - GPS IIIF SPAF Cost																		
GPS IIIF FFRDC	-	-	-	-	-	2.594	-	-	-	-	-	-	-	-	-	-	-	-
GPS IIIF A&AS	-	-	-	-	-	28.074	-	-	-	-	-	-	-	-	-	-	-	-
GPS IIIF Other Support	-	-	-	-	-	0.000	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Support - GPS IIIF SPAF Cost	**-**	**-**	**-**	**-**	**-**	***30.668***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Gross/Weapon System Cost	**-**	**-**	**-**	**389.975**	**1**	**389.975**	**-**	**-**	**0.000**	**-**	**-**	**0.000**	**-**	**-**	**-**	**-**	**-**	**0.000**

(†) indicates the presence of a P-5a

Exhibit P-5a, Procurement History and Planning: PB 2022 Air Force		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 3021F / 01 / 1	P-1 Line Item Number / Title: GPS03C / GPSIII Follow On	Item Number / Title [DODIC]: GPSIII Follow On

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
GPS IIIF(†)		2020	Lockheed Martin / Littleton, CO	C / FPIF	SMC, LA AFB, CA	Jul 2020	Sep 2026	1	354.413	N	Nov 2020	

(†) indicates the presence of a P-21

Exhibit P-21, Production Schedule: PB 2022 Air Force		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 3021F / 01 / 1	**P-1 Line Item Number / Title:** GPS03C / GPSIII Follow On	**Item Number / Title [DODIC]:** GPSIII Follow On

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	
GPS IIIF																															
	1	2020	AF	1	0	1										A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
							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 2022 Air Force		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 3021F / 01 / 1	P-1 Line Item Number / Title: GPS03C / GPSIII Follow On	Item Number / Title [DODIC]: GPSIII Follow On

Cost Elements (Units in Each)							Fiscal Year 2022												Fiscal Year 2023											BALANCE
										Calendar Year 2022														Calendar Year 2023								
OCO	MFR #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2021	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	
GPS IIIF																														
	1	2020	AF	1	0	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
							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 2022 Air Force		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 3021F / 01 / 1	P-1 Line Item Number / Title: GPS03C / GPSIII Follow On	Item Number / Title [DODIC]: GPSIII Follow On

Cost Elements (Units in Each)							Fiscal Year 2024												Fiscal Year 2025												BALANCE
							Calendar Year 2024												Calendar Year 2025													
OCO	MFR #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2023	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	
GPS IIIF																															
	1	2020	AF	1	0	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
							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 2022 Air Force		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 3021F / 01 / 1	P-1 Line Item Number / Title: GPS03C / GPSIII Follow On	Item Number / Title [DODIC]: GPSIII Follow On

Cost Elements (Units in Each)							Fiscal Year 2026												Fiscal Year 2027												BALANCE
							Calendar Year 2026												Calendar Year 2027													
OCO	MFR #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2025	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	
GPS IIIF																															
	1	2020	AF	1	0	1	-	-	-	-	-	-	-	-	-	-	-	1													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 2022 Air Force		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 3021F / 01 / 1	**P-1 Line Item Number / Title:** GPS03C / GPSIII Follow On	**Item Number / Title [DODIC]:** GPSIII Follow On

MFR Ref #	Manufacturer Name - Location	Production Rates (Each / Month)			Procurement Leadtime (Months)							
					Initial				Reorder			
		MSR For 2022	1-8-5 For 2022	MAX For 2022	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	Lockheed Martin - Littleton, CO				0	10	74	84	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 2022 Air Force	Date: May 2021
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 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	To Complete	Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	385.794	34.845	0.000	0.000	-	0.000	-	-	-	-	-	-
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	385.794	34.845	0.000	0.000	-	0.000	-	-	-	-	-	-
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**385.794**	**34.845**	**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)*	-	-	-	-	-	-	-	-	-	-	-	-
Flyaway Unit Cost *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-

Description:

In FY2021, P-1 Line Item GPSIII/GPS III Space Segment efforts were transferred to Appropriation 3022, Procurement, Space Force, from Appropriation 3021 due to the creation of a new Appropriation for Space Force.

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 (SVs) 01-02, is in PE 1203265F, Project 67A019, GPS III Space Segment. The satellites broadcast high-accuracy data using precisely synchronized signals that are received and processed by user equipment installed in military platforms. The user 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 SVs delivers significant enhancements, including a new international civil (L1C) Galileo-compatible signal and enhanced anti-jam power.

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 were pursued. The GPS III SVs 09-10 purchases are on the current Lockheed Martin contract as technical equivalents of SVs 01-08. SV 09 is funded with FY 2014 Missile Procurement, Air Force (MPAF) advance procurement and FY 2015 MPAF regular procurement. SV 10 is funded with FY 2015 MPAF advance procurement and FY 2016 Space Procurement, Air Force (SPAF) regular procurement.

Exhibit P-40, Budget Line Item Justification: PB 2022 Air Force		Date: May 2021
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		

Space acquisition must respond with speed and agility to emerging adversary threats. Space & Missile Systems Center (SMC) has transformed the organization and implementation of space acquisition to an enterprise approach, maximizing innovation and resiliency, leveraging international, commercial, and mission partnerships, and managing program/project priorities according to an integrated unclassified/ classified enterprise space architecture. Expanding the appropriate acquisition authorities and contract mechanisms to deliver capability sooner, SMC will strategically execute experimentation, prototyping, risk reduction, and other efforts to develop new or repurpose capabilities.

SV01 and SV02 were successfully launched on December 2018 and August 2019, respectively. SV03 and SV04 were successfully launched in June 2020 and November 2020, respectively. As of 1 December 2020, GPS III SV01-04 are all part of the operational GPS constellation serving military and civil users worldwide.

FY 2020 and Prior Years funding for this exhibit is contained in PE 1203265F. Beginning in FY 2021, funding is transferred to PE 1203265SF.

Exhibit P-40, Budget Line Item Justification: PB 2022 Air Force	Date: May 2021
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 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 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		- / 385.794	- / 34.845	- / 0.000	- / 0.000	- / -	- / 0.000
P-40	**Total Gross/Weapon System Cost**				**- / 385.794**	**- / 34.845**	**- / 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:
N/A

Exhibit P-5, Cost Analysis: PB 2022 Air Force		Date: May 2021
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 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	385.794	34.845	0.000	0.000	-	0.000
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	385.794	34.845	0.000	0.000	-	0.000
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**385.794**	**34.845**	**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 2020			FY 2021			FY 2022 Base			FY 2022 OCO			FY 2022 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 IIIF SAR	-	-	13.464	-	-	0.000	-	-	0.000	-	-	0.000	-	-	-	-	-	0.000
Subtotal: Recurring Cost	-	-	*13.464*	-	-	*0.000*	-	-	*0.000*	-	-	*0.000*	-	-	-	-	-	*0.000*
Subtotal: Hardware - GPS III Cost	**-**	**-**	***13.464***	**-**	**-**	***0.000***	**-**	**-**	***0.000***	**-**	**-**	***0.000***	**-**	**-**	**-**	**-**	**-**	***0.000***
Space Vehicle - Space Vehicle End Item Cost																		
Recurring Cost																		
GPS III SV 03-10	-	-	224.073	-	-	4.720	-	-	-	-	-	-	-	-	-	-	-	-
GPS III SV11+	-	-	1.763	-	-	0.000	-	-	-	-	-	-	-	-	-	-	-	-
GPS III SV 03-10 Enterprise SE&I	-	-	0.204	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GPS III SV 03-10 Technical Mission Analysis	-	-	32.957	-	-	3.549	-	-	-	-	-	-	-	-	-	-	-	-
GPS III SV 11+ Technical Mission Analysis	-	-	5.000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GPS III SV 03-10 Less Advanced Procurement	-	-	-	-	-	0.000	-	-	-	-	-	-	-	-	-	-	-	-
GPS III SV 03-10 Plus Advanced Procurement	-	-	-	-	-	0.000	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Recurring Cost	-	-	*263.997*	-	-	*8.269*	-	-	-	-	-	-	-	-	-	-	-	-

Exhibit P-5, Cost Analysis: PB 2022 Air Force		Date: May 2021
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 2020			FY 2021			FY 2022 Base			FY 2022 OCO			FY 2022 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	**-**	**-**	***263.997***	**-**	**-**	***8.269***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Checkout and Launch - Checkout And Launch End Item Cost																		
GPS III SV 03-10 Launch Services	-	-	52.004	-	-	4.681	-	-	-	-	-	-	-	-	-	-	-	-
GPS III SV 03-10 On-Orbit Incentive	-	-	1.500	-	-	20.019	-	-	-	-	-	-	-	-	-	-	-	-
GPS III SV 03-10 Storage and MRT	-	-	10.065	-	-	0.904	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Checkout and Launch - Checkout And Launch End Item Cost	**-**	**-**	***63.569***	**-**	**-**	***25.604***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Support - Support End Item Cost																		
GPS III SV 03-10 FFRDC	-	-	17.985	-	-	0.000	-	-	-	-	-	-	-	-	-	-	-	-
GPS III SV 03-10 A&AS	-	-	15.895	-	-	0.726	-	-	-	-	-	-	-	-	-	-	-	-
GPS III SV 03-10 Other Support	-	-	1.650	-	-	0.246	-	-	-	-	-	-	-	-	-	-	-	-
GPS III SV 11+ FFRDC	-	-	4.724	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GPS III SV 11+ A&AS	-	-	4.510	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Support - Support End Item Cost	**-**	**-**	***44.764***	**-**	**-**	***0.972***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Gross/Weapon System Cost	**-**	**-**	**385.794**	**-**	**-**	**34.845**	**-**	**-**	**0.000**	**-**	**-**	**0.000**	**-**	**-**	**-**	**-**	**-**	**0.000**

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Exhibit P-40, Budget Line Item Justification: PB 2022 Air Force	Date: May 2021
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 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	To Complete	Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	-	32.031	0.000	0.000	-	0.000	-	-	-	-	-	-
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	-	32.031	0.000	0.000	-	0.000	-	-	-	-	-	-
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**-**	**32.031**	**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)*	-	-	-	-	-	-	-	-	-	-	-	-
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 space information superiority. Space COMSEC provides cybersecurity (confidentiality, integrity, and availability) for Department of Defense (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 DOD. Space COMSEC provides products and lifecycle sustainment support to all DoD satellite systems and commercial systems supporting DOD missions. The Air Force, Space Force, DOD, and Intelligence Community require the capability to secure, collect, process, store, and disseminate an uninterrupted flow of information, while denying an adversary the ability to intercept, collect, destroy, interpret, or manipulate our information flows. 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. 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 procures crypto end items and logistics elements to support developing and operational space systems. The Space Modular Common Cryptography (SMCC) Program of Record procures a family of common cryptography (crypto) solutions that integrate Telemetry, Tracking, and Command (TT&C), Mission Data (MD), and Transmission Security (TRANSEC) key stream functions for the Air Force, Space Force, DoD, and Intelligence Community space systems. The The SMCC Program's mission is to secure communication links and the data transmitted, incorporate standard interfaces that leverage existing technologies, provide a basis for future technologies, and design solutions that are scalable, upgradeable, and reconfigurable.

Funding for this exhibit contained in program element (PE) 1203140F.

In FY2021 P-1 Line Item MCOMSE/Spaceborne Equipment (COMSEC) efforts were transferred to Appropriation 3022F, Procurement, Space, from Appropriation 3021F due to the creation of a new Appropriation for Space Force.

Justification:

Exhibit P-40, Budget Line Item Justification: PB 2022 Air Force		Date: May 2021
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		

1. Space Communications Security (COMSEC): Procures cryptographic products to operate in the space environment and for ground nodes that link to space assets. 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.

a. Logistics: FY21 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, Space 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.

b. Aerospace Vehicle Equipment (AVE) Products: FY21 funding provides Telemetry, Tracking, and Command (TT&C) cryptographic products to operate in the space environment. AVE provides the procurement of space qualified command up link algorithm embedment Application-Specific Integrated Circuits (ASICs).

c. Ground Operating Equipment (GOE) Products: FY21 funding provides cryptographic products for ground nodes that link to space assets. GOE provide the procurement of ground equipment with space qualified command encryption/decryption ground equipment used for operational and developmental space systems (Telemetry, Tracking, and Command (TT&C) Mission Data and Satellite Communication (SATCOM) products).

2. Space Modular Common Cryptography (SMCC): Reduces space programs development costs by providing a common, modular and upgradable cryptographic solution set. SMCC is fully endorsed by NSA as the preferred solution for all emerging National Security Space Systems. The SMCC Program will award a separate production contract to procure Common Crypto Solutions in FY21 for Air Force, DOD, and Intelligence Community Space Programs. FY21 funding provides for the production of SMCC for satellite programs such as GPS III. SMCC meets NSA mandated space algorithm transition/modernization guidance to mitigate evolving threats/vulnerabilities and will provide modernized cryptographic capabilities.

Exhibit P-40, Budget Line Item Justification: PB 2022 Air Force	Date: May 2021
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 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	To Complete	Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	-	11.096	0.000	0.000	-	0.000	-	-	-	-	-	-
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	-	11.096	0.000	0.000	-	0.000	-	-	-	-	-	-
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**-**	**11.096**	**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)*	-	-	-	-	-	-	-	-	-	-	-	-
Flyaway Unit Cost *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-

Description:

In FY 2021, P-1 Line Item MILSAT / MILSATCOM efforts were transferred to Appropriation 3022, Procurement, Space Force, from Appropriation 3021 due to the creation of a new Appropriation for Space Force.

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. Funding for this exhibit is contained in PE 1203601SF, MILSATCOM Terminals, except where otherwise noted.

Space acquisition must respond with speed and agility to emerging adversary threats. Space & Missile Systems Center (SMC) has transformed the organization and implementation of space acquisition to an enterprise approach, maximizing innovation and resiliency, leveraging international, commercial, and mission partnerships, and managing program/project priorities according to an integrated unclassified/ classified enterprise space architecture. Expanding the appropriate acquisition authorities and contract mechanisms to deliver capability sooner, SMC will strategically execute experimentation, prototyping, risk reduction, and other efforts to develop new or repurpose capabilities.

Space and Missile Systems Center (SMC) is procuring and fielding Protected Tactical Waveform (PTW) capable modems to meet the Ground Multiband Terminal (GMT) mission requirements. The Air Force / Army Anti-jam Modem (A3M) is the program of record for development, procurement, and fielding of the PTW capability. The United States Space Force is teamed with the Army to expand the competitive industry base and gain volume cost savings of a common modem. The A3M modem will provide high throughput and enhanced anti-jam capability in benign and contested environments to prevent the disruption of communications from electronic jamming at identified threat levels of the Wideband Global SATCOM (WGS) Operational Requirements Document (ORD). The A3M modem meets the Internet Protocol (IP) mandate, is forward compatible with the future Protected Tactical SATCOM (PTS), and will contain a National Security Agency (NSA) certified End Cryptographic Unit (ECU).

A3M Procurement funding includes depot tooling, establishment of the Key Loading and Initialization Facility (KLIF), purchase of Protected Tactical Enterprise Service (PTES) KLIF Host equipment, A3M warehousing equipment, shipping containers, and A3M test equipment and repair work spaces. Will purchase GMT modification kits, including cable sets to install the modem into the GMT transit cases; a new commercial off the shelf (COTS) Data Collection Unit (DCU) to support A3M data throughput; and GMT modification labor to remove and process obsolete hardware, repair and label GMT modified case, and install A3M. Also required is shipping of modified GMT cases to field units and return shipping of un-modified GMT equipment cases and fielding support, purchase and delivery of technical data, and initial spares in a combination of spare modems and subassembly parts equivalent to 10% sparing. A3M's Indefinite Quantity Indefinite Delivery (IDIQ) contract will enable future fielding for additional WGS users.

Funding for this exhibit is contained in Program Element (PE) 1203601SF MILSATCOM TERMINALS.

Exhibit P-40, Budget Line Item Justification: PB 2022 Air Force	Date: May 2021
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 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 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		- / -	- / 11.096	- / -	- / -	- / -	- / -
P-40	**Total Gross/Weapon System Cost**				**- / -**	**- / 11.096**	**- / 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:
N/A

Exhibit P-5, Cost Analysis: PB 2022 Air Force		Date: May 2021
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 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	-	11.096	-	-	-	-
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	-	11.096	-	-	-	-
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**-**	**11.096**	**-**	**-**	**-**	**-**
(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 2020			FY 2021			FY 2022 Base			FY 2022 OCO			FY 2022 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 - AFWET Cost																		
Recurring Cost																		
Terminal Modernization	-	-	-	-	-	5.497	-	-	-	-	-	-	-	-	-	-	-	-
Maintenance Upgrades/ Sustainment	-	-	-	-	-	2.933	-	-	-	-	-	-	-	-	-	-	-	-
Product Support	-	-	-	-	-	1.478	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Recurring Cost	-	-	-	-	-	*9.908*	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Hardware - AFWET Cost	**-**	**-**	**-**	**-**	**-**	***9.908***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Support - AFWET Cost																		
Advisory and Assistance Services (A&AS)	-	-	-	-	-	0.624	-	-	-	-	-	-	-	-	-	-	-	-
OTHER SUPPORT	-	-	-	-	-	0.564	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Support - AFWET Cost	**-**	**-**	**-**	**-**	**-**	***1.188***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Gross/Weapon System Cost	**-**	**-**	**-**	**-**	**-**	**11.096**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**

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Exhibit P-40, Budget Line Item Justification: PB 2022 Air Force	Date: May 2021
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 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	To Complete	Total
Procurement Quantity *(Units in Each)*	-	4	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	-	1,237.635	0.000	0.000	-	0.000	-	-	-	-	-	-
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	-	1,237.635	0.000	0.000	-	0.000	-	-	-	-	-	-
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**-**	**1,237.635**	**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)*	-	-	-	-	-	-	-	-	-	-	-	-
Flyaway Unit Cost *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Millions)*	-	309.409	-	-	-	-	-	-	-	-	-	-

Description:

In FY2021, PE 1203953F/P-1 Line Item MSEELV efforts were transferred to Appropriation 3022, Procurement, Space Force, Line Item NSSL00 National Security Space Launch from Appropriation 3021 to align with Congressional renaming of the program to NSSL and the creation of a new Appropriation for Space Force.

The NSSL 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 United States Government (USG) space lift missions. The NSSL program will leverage USG inter-agency and commercial cooperation by utilizing the total launch vehicle performance and maximizing on-orbit opportunities that will expedite delivery of critical capabilities. The NSSL program provides satellite delivery to specific orbits through certified Launch Vehicle (LV) providers.

NSSL 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. 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. The requirements for NSSL launch services are derived from multiple spacecraft requirements. The Air Force procurement satisfies National Security Space (NSS) unique capabilities for NSS requirements that are beyond the scope of current commercial capability. "To Complete" projections include only known requirements at this time.

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 meet NSS requirements. The Government may award early integration contracts to ensure each potential offeror's launch system is compatible with the intended payload. 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.

To comply with the FY 2016 National Defense Authorization Act, the Air Force ended EELV Launch Capability at the end of FY 2019. Beginning in FY 2020, the NSSL budget request is being submitted in a single P-1 line. This will merge two separate EELV program P-1 line items that were established based on the FY 2013 and FY 2014 Appropriations Acts.

Exhibit P-40, Budget Line Item Justification: PB 2022 Air Force	Date: May 2021
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 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 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)		A		- / -	4 / 1,237.635	- / 0.000	- / 0.000	- / -	- / 0.000
P-40	**Total Gross/Weapon System Cost**				**- / -**	**4 / 1,237.635**	**- / 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:
N/A

Exhibit P-5, Cost Analysis: PB 2022 Air Force		Date: May 2021
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 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Procurement Quantity *(Units in Each)*	-	4	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	-	1,237.635	0.000	0.000	-	0.000
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	-	1,237.635	0.000	0.000	-	0.000
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**-**	**1,237.635**	**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)*	-	309.409	-	-	-	-

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

Cost Elements	Prior Years			FY 2020			FY 2021			FY 2022 Base			FY 2022 OCO			FY 2022 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	-	-	-	196.287	4	785.148	-	-	-	-	-	0.000	-	-	-	-	-	0.000
Enterprise Systems Engineering & Integration	-	-	-	-	-	32.969	-	-	-	-	-	-	-	-	-	-	-	-
Mission Assurance	-	-	-	-	-	107.117	-	-	-	-	-	-	-	-	-	-	-	-
Launch Services Support	-	-	-	-	-	208.921	-	-	-	-	-	-	-	-	-	-	-	-
Phase 1 Atlas V completion	-	-	-	-	-	58.988	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Recurring Cost	-	-	-	-	-	*1,193.143*	-	-	-	-	-	*0.000*	-	-	-	-	-	*0.000*
Subtotal: Launch - Launch End Item Cost	**-**	**-**	**-**	**-**	**-**	***1,193.143***	**-**	**-**	**-**	**-**	**-**	***0.000***	**-**	**-**	**-**	**-**	**-**	***0.000***
Support - Support End Item Cost																		
Other Support	-	-	-	-	-	6.987	-	-	-	-	-	-	-	-	-	-	-	-
A&AS	-	-	-	-	-	16.660	-	-	-	-	-	-	-	-	-	-	-	-
FFRDC	-	-	-	-	-	20.845	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Support - Support End Item Cost	**-**	**-**	**-**	**-**	**-**	***44.492***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Gross/Weapon System Cost	**-**	**-**	**-**	**309.409**	**4**	**1,237.635**	**-**	**-**	**0.000**	**-**	**-**	**0.000**	**-**	**-**	**-**	**-**	**-**	**0.000**

Remarks:

Exhibit P-5, Cost Analysis: PB 2022 Air Force		Date: May 2021
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:**

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. The NRO and the Air Force will share the costs for the Launch Service Support (LSS).

Exhibit P-40, Budget Line Item Justification: PB 2022 Air Force	Date: May 2021
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: N/A	Other Related Program Elements: 1206441F
Line Item MDAP/MAIS Code: 210		

Resource Summary	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	To Complete	Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	1,906.731	226.952	0.000	0.000	-	0.000	-	-	-	-	-	-
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	1,906.731	226.952	0.000	0.000	-	0.000	-	-	-	-	-	-
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**1,906.731**	**226.952**	**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)*	-	-	-	-	-	-	-	-	-	-	-	-
Flyaway Unit Cost *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-

Description:

In FY2021, MSSBIR/SBIR High (Space) efforts were transferred to Appropriation 3022, Procurement, Space Force, from Appropriation 3021 due to the creation of a new Appropriation for Space Force.

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

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 3-6 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 (Research, Development, Test, and Evaluation (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 in Jan 2018. GEO-3 and 4 are fully mission capable, having completed AFSPC and USSTRATCOM operational acceptance and are certified for Integrated Tactical Warning/Attack Assessment (ITW/AA) missile warning operations and technical intelligence operations.

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.

Exhibit P-40, Budget Line Item Justification: PB 2022 Air Force		Date: May 2021
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: N/A	Other Related Program Elements: 1206441F
Line Item MDAP/MAIS Code: 210		

For the GEO 5-6 block buy, the FY 2013 NDAA authorized six years of incremental production funding and limited the incrementally funded contract obligation to $3,900M. The years of incremental funding were 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 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.

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-3 and 4 payloads are on-orbit and certified for Integrated Tactical Warning/Attack Assessment (ITW/AA) missile warning operations and certified for technical intelligence operations. HEO-1 and HEO-2 are in a storage/ residual operational mode.

Total GEO 3-4 3020/3021 funds are $2,794.947M.
Total GEO 5-6 3020/3021/3022 funds are $3,376.105M.
Total HEO 3-4 3020/3021 funds are $1,146.672M.
Total S2E2 3080/3020/3021/3022 funds are $603.444M.

SBIRS SURVIVABLE ENDURABLE EVOLUTION (S2E2):The S2E2 effort replaces the DSP only Mobile Ground System (MGS); S2E2 consists of the SBIRS Mobile Ground Terminal (SMGT) and Parabolic Dish Subsystem (PDSS). The current MGS is the only US Survivable and Endurable (S/E) Tactical Warning and Attack Assessment (TW/AA) system (S/E TW/AA) and 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 U.S. Space Command's global S/E TW/AA operational capabilities to meet President of the United States, Joint Staff, Combatant Commander, and Forward User requirements for continuous, persistent, and enduring TW/AA non-imaging infrared for Missile Warning (MW) and Nuclear Detonation (NUDET) reporting across all phases of military operations. The program will deliver 5 SMGTs, of which 3 SMGTs will have upgraded capability in accordance with the USSPACECOM Survivable/Endurable CONOPS (JROC endorsed 31 Jul 2020) to include SBIRS GEO 5/6 processing and TT&C, and the new protected and wide band SATCOM capable terminals. Funding also provides Interim Contractor Support (ICS). The delivery of this effort enables the weapon system to process DSP, SBIRS GEO (1-6), and GPS and NUDET data and missions while addressing long-standing obsolescence, supportability, and cyber-security concerns as well as improved capability to withstand a high altitude electromagnetic pulse (HEMP) per MIL-STD-188-125-2. In addition, training software, and integration of the Universal Ground NUDET Terminal (UGNT) and the new protected and wide band SATCOM capable terminals are included. Finally, this effort includes all activities required to pivot the weapon system to meet the CONOPS change directed by USSPACECOM and approved by the JROC on 31 Jul 2020. Additionally, includes operations location setup, transportation of hardware to include, but not limited to, Systems Engineering and Technical Assistance enterprise activities which provide intra-and inter-program office support to support S2E2 operations.

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.

Space acquisition must respond with speed and agility to emerging adversary threats. Space & Missile Systems Center (SMC) has transformed the organization and implementation of space acquisition to an enterprise approach, maximizing innovation and resiliency, leveraging international, commercial, and mission partnerships, and managing program/project priorities according to an integrated unclassified/ classified enterprise space architecture. Expanding the appropriate acquisition authorities and contract mechanisms to deliver capability sooner, SMC will strategically execute experimentation, prototyping, risk reduction, and other efforts to develop new or repurpose capabilities.

Funding for this exhibit contained in (PE) 1203915F.

In FY2021 SBIR High received a Congressional reduction of $15M for "S2E2 undefined strategy".

Justification:
N/A

Exhibit P-40, Budget Line Item Justification: PB 2022 Air Force		Date: May 2021
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: N/A	Other Related Program Elements: 1206441F
Line Item MDAP/MAIS Code: 210		

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Exhibit P-40, Budget Line Item Justification: PB 2022 Air Force	Date: May 2021
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 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	To Complete	Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	-	8.918	0.000	0.000	-	0.000	-	-	-	-	-	-
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	-	8.918	0.000	0.000	-	0.000	-	-	-	-	-	-
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**-**	**8.918**	**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)*	-	-	-	-	-	-	-	-	-	-	-	-
Flyaway Unit Cost *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-

Description:

In FY2021, P-1 Line Item NUDETS/NUDET Detection System efforts were transferred to Appropriation 3022, Procurement, Space Force, from Appropriation 3021 due to the creation of a new Appropriation for Space Force.

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 (PL) 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 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 (SEI&T) 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 USNDS program in Program Element (PE) 1203913F with Research, Development, Test and Evaluation (RDT&E), Space Procurement AF (SPAF), and Operations and Maintenance (O&M) dollars. USNDS payload integration onto GPS satellites is funded in the GPS III Space Segment PE 1203265F for GPS III SVs. USNDS 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 capabilities 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.

Exhibit P-40, Budget Line Item Justification: PB 2022 Air Force		Date: May 2021
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 ground control segment is being modernized and continuously improved through an incremental evolutionary acquisition approach. Fact of life upgrades include operating system changes (Red Hat Linux) to meet information assurance requirements and hardware/software technology refreshes.

Space acquisition must respond with speed and agility to emerging adversary threats. Space & Missile Systems Center (SMC) is transforming the organization and implementation of space acquisition to an enterprise approach, maximizing innovation and resiliency, leveraging international, commercial, and mission partnerships, and managing program/project priorities according to an integrated unclassified/ classified enterprise space architecture. Expanding the appropriate acquisition authorities and contract mechanisms to deliver capability sooner, SMC will strategically execute experimentation, prototyping, risk reduction, and other efforts to develop new or repurpose capabilities.

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

Justification:
N/A

Exhibit P-40, Budget Line Item Justification: PB 2022 Air Force	Date: May 2021
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 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	To Complete	Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	-	11.473	0.000	0.000	-	0.000	-	-	-	-	-	-
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	-	11.473	0.000	0.000	-	0.000	-	-	-	-	-	-
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**-**	**11.473**	**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)*	-	-	-	-	-	-	-	-	-	-	-	-
Flyaway Unit Cost *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-

Description:

The Rocket Systems Launch Program (RSLP) procures small launch services to deliver affordable, flexible spacelift for small payloads. The small launch program complements the National Security Space Launch (NSSL) 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 FY 2019, the Air Force started using this procurement line for small launch services procurement requirements. Previously, small launch funding resided in the satellite program budgets. This change aligned launch service procurement activities with the necessary funding under Space and Missile Systems Center (SMC) 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.

Space acquisition must respond with speed and agility to emerging adversary threats. SMC has transformed the organization and implementation of space acquisition to an enterprise approach, maximizing innovation and resiliency, leveraging international, commercial, and mission partnerships, and managing program/project priorities according to an integrated unclassified/classified enterprise space architecture. Expanding the appropriate acquisition authorities and contract mechanisms to deliver capability sooner, SMC will strategically execute experimentation, prototyping, risk reduction, and other efforts to develop new or repurpose capabilities.

This program 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.

Justification:
N/A

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Exhibit P-40, Budget Line Item Justification: PB 2022 Air Force	Date: May 2021
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: 438		

Resource Summary	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	To Complete	Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	-	57.784	0.000	0.000	-	0.000	-	-	-	-	-	-
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	-	57.784	0.000	0.000	-	0.000	-	-	-	-	-	-
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**-**	**57.784**	**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)*	-	-	-	-	-	-	-	-	-	-	-	-
Flyaway Unit Cost *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-

Description:

In FY 2021, P-1 Line Item SPCFNC/Space Fence efforts were transferred to Appropriation 3022, Procurement, Space Force, from Appropriation 3021 due to the creation of a new Appropriation for Space Force.

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 site 1 will be delivered in FY 2020.

Space acquisition must respond with speed and agility to emerging adversary threats. Space & Missile Systems Center (SMC) is transforming the organization and implementation of space acquisition to an enterprise approach, maximizing innovation and resiliency, leveraging international, commercial, and mission partnerships, and managing program/project priorities according to an integrated unclassified/ classified enterprise space architecture. Expanding the appropriate acquisition authorities and contract mechanisms to deliver capability sooner, SMC will strategically execute experimentation, prototyping, risk reduction, and other efforts to develop new or repurpose capabilities. Conduct Test and Evaluation of software patches to resolve documented deficiencies. Conduct cybersecurity test activities necessary to maintain required authorizations (e.g., Authorization to Operate; Authorization to Connect).

Funding for this exhibit is contained in PE 1206426F. In FY19, Space Fence was a New Start.

Justification:

No FY 2022 funding requested

In FY 2020, Space Fence required funding for interim contractor support (ICS), energy costs, Space Fence Operation Center (SOC) operators, services at the SOC (US Army Strategic Command/Space and Missile Defense Center) and Diminishing Manufacturing Sources (DMS).

Started Depot Activation in support of ICS and activities to include, but not limited to, Technical Order management, depot-level repair funding reporting, DMS, obsolescence management and other analysis requirements. Rapidly respond to and implement system resiliency and situational awareness necessary to operate in the contested space domain. Activities included, but are not limited to program office support, studies, technical analysis, experimentation, prototyping, etc.

Exhibit P-40, Budget Line Item Justification: PB 2022 Air Force		Date: May 2021
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: 438		

Rapidly responded to and implemented 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, experimentation, prototyping, etc.

In FY 2020, Space Fence received a Congressional reduction of 14.000M.

Exhibit P-40, Budget Line Item Justification: PB 2022 Air Force	Date: May 2021
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):	Program Elements for Code B Items: 1203165F, 1203699F, 1203710F	Other Related Program Elements: 0305614F, 1203710F

Line Item MDAP/MAIS Code: N/A

Resource Summary	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	To Complete	Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	167.969	106.330	0.000	0.000	-	0.000	-	-	-	-	-	-
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	167.969	106.330	0.000	0.000	-	0.000	-	-	-	-	-	-
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**167.969**	**106.330**	**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)*	-	-	-	-	-	-	-	-	-	-	-	-
Flyaway Unit Cost *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-

Description:

In FY 2021, P-1 Line Item SPCMOD/SPACE MODS SPACE efforts were transferred to Appropriation 3022, Procurement, Space Force, from Appropriation 3021, Space Procurement, Air Force, due to the creation of a new appropriation for Space Force.

Space Mods Space funding enables 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.

Space acquisition must respond with speed and agility to emerging adversary threats. Space & Missile Systems Center (SMC) has transformed the organization and implementation of space acquisition to an enterprise approach, maximizing innovation and resiliency, leveraging international, commercial, and mission partnerships, and managing program/project priorities according to an integrated unclassified/ classified enterprise space architecture. Expanding the appropriate acquisition authorities and contract mechanisms to deliver capability sooner, SMC will strategically execute experimentation, prototyping, risk reduction, and other efforts to develop new or repurpose capabilities.

The following Program Elements are represented in this Budget Line Item:

PE 1203160F DEFENSE METEOROLOGICAL SATELLITE PROGRAM (DMSP)

The DEFENSE METEOROLOGICAL SATELLITE PROGRAM (DMSP), COMMAND, CONTROL, and COMMUNICATIONS (C3) GROUND SYSTEM (GS) (DC3GS) is the ground system that supports DMSP, a fully operational program supporting a broad range of national security users who require timely and accurate global weather information. DMSP is a 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). DC3GS key elements 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 was re-established a procurement funding line in FY 2015 to enable continued DC3GS sustainment through a selective re-capitalization

Exhibit P-40, Budget Line Item Justification: PB 2022 Air Force		Date: May 2021
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):	Program Elements for Code B Items: 1203165F, 1203699F, 1203710F	Other Related Program Elements: 0305614F, 1203710F
Line Item MDAP/MAIS Code: N/A		

effort. DC3GS subsystems to be addressed include, but are not limited to the Link/2 Communication System, and Mission Planning and Scheduling System. Current DMSP planned fly-out date is FY2027, recent guidance has been that if the system is capable, it may continue to fly past that date. This selective re-capitalization effort is intended to ensure the DC3GS remains viable and serviceable to support DMSP while it remains in flight.

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 Military GPS User Equipment (MGUE).

PE 1203614F JSPOC MISSION SYSTEM

Space Situational Awareness (SSA) and Space Command and Control (C2), formerly known as JSpOC Mission System (JMS), provides integrated SSA information and Battle Management Command and Control (BMC2) 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 enterprise provides a common government infrastructure and standards for rapid prototyping and deployment of dynamic SSA and BMC2 applications. These applications will deliver capabilities that include but are not limited to the ability to create decision-relevant views of the space environment; rapidly detect, track and characterize objects of interest; identify / exploit traditional and non-traditional sources; perform space threat analysis; and enable efficient distribution of data across the Space Surveillance Network (SSN). Funding for this effort completes in FY 2020.

PE 1203699F Shared Early Warning System (SEWS)

The Shared Early Warning System (SEWS) provides accurate and timely ballistic missile warning information generated by space-based infrared sensors. This information is distributed to three combatant commanders (USEUCOM, USCENTCOM, USINDOPACOM), NATO, and multiple foreign partner nations located within each of the serviced Combatant Commands. U.S. forces and foreign partner nations receive missile warning data via a dedicated communications network flowing from the Centralized Distribution Facility (CDF) at Peterson AFB, CO to secondary distribution facilities located with the Combatant Commands and distribution hubs located in foreign partner nation operations centers. Data segregation for the foreign nation partners is maintained through the use of approved cross domain solutions with unique rule sets that reflect Office of the Secretary of Defense policy regarding the dissemination of missile warning data to foreign nations. SEWS utilizes Defense Information Systems Agency (DISA) mandated data processing capabilities, new missile warning message formats, and cyber security requirements set forth in Department of Defense Instruction 8500.1 (DODI 8500.1).

PE 1203710F EO/IR WEATHER SYSTEMS

ELECTRO-OPTICAL/INFRARED WEATHER SYSTEMS: Residual Geostationary Operational Environmental Satellite (GOES) Relocation is a Department of Defenses (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 September 3, 2014. The program will leverage a residual 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). Funding for this effort completes in FY 2019.

PE 1203873F Ballistic Missile Defense Radars

Exhibit P-40, Budget Line Item Justification: PB 2022 Air Force		Date: May 2021
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):	Program Elements for Code B Items: 1203165F, 1203699F, 1203710F	Other Related Program Elements: 0305614F, 1203710F

Line Item MDAP/MAIS Code: N/A

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 Domain Awareness (SDA) 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 (NFLs). It operates as part of the larger Space Surveillance Network (SSN) and provides metric observation data to its command and control nodes: the Combined Space Operations Center (CSpOC) 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 manmade 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)

The BALLISTIC MISSILE EARLY WARNING SYSTEM (BMEWS) is a ground based radar system with missions to support the Missile Correlation, Space Surveillance, and Missile Defense Centers. The radar system provides United States Strategic Command (USSTRATCOM) with credible Integrated Tactical Warning/Attack Assessment (ITW/AA) data on all 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 system 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 BMEWS and PAVE Phased Array Warning Systems (PAVE PAWS) radars share 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. 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.

PE 0305912F SLBM RADAR 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 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). The PARCS Radar System is located at Cavalier AFB ND. The BMEWS and PAVE Phased Array Warning Systems (PAVE PAWS) radars share a common baseline and mission with the difference that BMEWS deploys more array elements on its radar faces. PAVE PAWS radars are located at Beale AFB, CA and Cape Cod AFS, MA. The Upgraded Early Warning Radar (UEWR) site at Beale AFB also has a Missile Defense (MD) mission supporting the Missile Defense Agency. 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

Exhibit P-40, Budget Line Item Justification: PB 2022 Air Force		Date: May 2021
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):	**Program Elements for Code B Items:** 1203165F, 1203699F, 1203710F	**Other Related Program Elements:** 0305614F, 1203710F
Line Item MDAP/MAIS Code: N/A		

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.

Justification:
N/A

Exhibit P-40, Budget Line Item Justification: PB 2022 Air Force	Date: May 2021
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):	Program Elements for Code B Items: 1203182F	Other Related Program Elements: N/A

Line Item MDAP/MAIS Code: N/A

Resource Summary	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	To Complete	Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	148.268	116.654	0.000	0.000	-	0.000	-	-	-	-	-	-
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	148.268	116.654	0.000	0.000	-	0.000	-	-	-	-	-	-
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**148.268**	**116.654**	**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)*	-	-	-	-	-	-	-	-	-	-	-	-
Flyaway Unit Cost *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-

Description:

In FY2021, P-1 Line Item SPRNGE/Spacelift Range System Space efforts were transferred to Appropriation 3022, Procurement, Space Force, from Appropriation 3021 due to the creation of a new Appropriation for Space Force.

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 ensures ability to meet the national launch requirement, safely support the launch cadence of ER/WR launch requirement holders, and provide 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.

Exhibit P-40, Budget Line Item Justification: PB 2022 Air Force		Date: May 2021
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):	Program Elements for Code B Items: 1203182F	Other Related Program Elements: N/A
Line Item MDAP/MAIS Code: N/A		

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 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.

Spacelift Range Reduction divests funds from the current Spacelift Range System (SLRS) budgeted for future upgrades now made unnecessary by Autonomous Flight Safety System (AFSS) implementation. ROTF Projects will enable agile and resilient LTRS operations following full AFSS implementation. LTRS must support non-AFSS equipped Major Range and Test Facility Base (MRTFB) activities through 2030. This requires budgeted LTRS sustainment through Range of the Future (ROTF) Architecture deployment in 2028, prior to implemented Spacelift Range Reductions.

Funding for this exhibit is contained in PE 1203182F.

As directed in the FY 2019 NDAA, Sec 825, amendment to PL 114-92 FY 2016 NDAA, Sec 828 Penalty for Cost Overruns, the FY19 penalty total is 50.0M. The calculated percentage reduction to each research, development, test and evaluation and procurement account will be allocated proportionally from all programs, projects, or activities under such account.

Space acquisition must respond with speed and agility to emerging adversary threats. Space & Missile Systems Center (SMC) has transformed the organization and implementation of space acquisition to an enterprise approach, maximizing innovation and resiliency, leveraging international, commercial, and mission partnerships, and managing program/project priorities according to an integrated unclassified/ classified enterprise space architecture. Expanding the appropriate acquisition authorities and contract mechanisms to deliver capability sooner, SMC will strategically execute experimentation, prototyping, risk reduction, and other efforts to develop new or repurpose capabilities.

Justification:
N/A

Exhibit P-40, Budget Line Item Justification: PB 2022 Air Force	Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 3021F: Space Procurement, Air Force / BA 02: Spares / BSA 2: SSpares	**P-1 Line Item Number / Title:** SSPARE / Spares and 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 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	To Complete	Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	-	7.263	0.000	0.000	-	0.000	-	-	-	-	-	-
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	-	7.263	0.000	0.000	-	0.000	-	-	-	-	-	-
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**-**	**7.263**	**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)*	-	-	-	-	-	-	-	-	-	-	-	-
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 Programs (MDAP):
Family of Advanced BLoS Terminals (FAB-T), 199
Space-Based Infrared System (SBIRS), 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 FY 2017:

FAB-T Inc 1
Information Systems Security Program
NAVSTAR Global Positioning System (Control Segment)
Space Situation Awareness Operations
SBIRS

Justification:
The FY 2021 budget supports initial spares for the following programs: Information Systems Security Program, NAVSTAR Global Positioning System (Space and Control Segments).

Spaceborne Equipment (COMSEC): FY20 funding ($0.824M) is required to supply crypto devices for space and ground nodes, used by all Services/Agencies, to meet an NSA cybersecurity mandates

NAVSTAR GPS: FY 2020 funding provides initial operational equipment spares for GPS ground sites and laboratories, replacing equipment that is primarily obsolete and requires technical refresh or modifications. Projects include the technical refresh of the GPS Information Network (GIN), deployed in 2012, and the technical refresh of the GPS Ground Antenna Infrastructure, deployed in 2009. Both systems are beyond design life and require reconstitution. Spares are needed to support the systems through their remaining life cycles. Both systems will continue to be required for operations into the OCX era.

Exhibit P-40, Budget Line Item Justification: PB 2022 Air Force		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 3021F: Space Procurement, Air Force / BA 02: Spares / BSA 2: SSpares	P-1 Line Item Number / Title: SSPARE / Spares and 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		

SSA Operations: No FY 2020 funding is requested.

SBIRS: No FY 2021 funding is requested.