Department of Defense
Fiscal Year (FY) 2022 Budget Estimates

May 2021

Air Force

Justification Book Volume 1 of 1

Procurement, Space Force

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Volume 1 Table of Contents

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Appropriation Language
Fiscal Year (FY) 2022 Budget Estimates
Procurement, Space Force

For construction, procurement, and modification of spacecraft, launch services, and related equipment (including ground control and communication equipment) and training devices; expansion of public and private plants, Government-owned equipment and installation thereof in such plants, erection of structures, and acquisition of land, for the foregoing purposes, and such lands and interests therein, may be acquired, and construction prosecuted thereon prior to approval of title; reserve plant and Government and contractor-owned equipment layaway; and other expenses necessary for the foregoing purposes including rents and transportation of things; $ 2,766,854,000 to remain available for obligations until September 30, 2026.

Exhibit footnotes for FY 2020 actuals and FY 2021 Enacted:

a. FY 2020 Actuals: **"Includes Division A, Title IX and X of the Consolidated Appropriations Act, 2020 (P.L. 116-93), Division F, Title IV and V from the Further Consolidated Appropriations Act, 2020 (P.L. 116-94) and the Coronavirus Aid, Relief, and Economic Security Act (P.L. 116-136)."**

b. FY 2021 Enacted (for every appropriation except O&M, Army, O&M, Navy, and O&M, AF): **"Includes Division C, Title IX and Division J, Title IV of the Consolidated Appropriations Act, 2021 (P.L. 116-260)."**

c. FY 2021 Enacted (for O&M, Army, O&M, Navy, and O&M, AF): "Includes Division C, Title IX and Division J, Title IV of the Consolidated Appropriations Act, 2021 (P.L. 116-260) and funds provided by the Congress as OCO to Base Requirements in O&M Army, O&M Navy, and O&M AF."

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: 3022F Procurement, Space 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, SF								
	Space Procurement, SF								
1	Advanced EHF	A				7,823			U
2	AF Satellite Comm System	A				53,326		43,655	U
3	Counterspace Systems	A				49,155		64,804	U
4	Family of Beyond Line-of-Sight Terminals	A				61,190		39,444	U
5	General Information Tech - Space	A				3,299		3,316	U
6	GPSIII Follow On	A			2	597,796	2	601,418	U
7	GPS III Space Segment	A				20,122		84,452	U
8	Global Postioning (Space)	A				2,256		2,274	U
9	HERITAGE TRANSITION	A						13,529	U
10	Spaceborne Equip (Comsec)	A				35,495		26,245	U
11	MILSATCOM	A				15,795		24,333	U
12	SBIR High (Space)	A				145,891		154,526	U
13	Special Space Activities	A				78,387		142,188	U
14	Mobile User Objective System	A						45,371	U
15	National Security Space Launch	A			3	996,371	5	1,337,347	U
16	NUDET Detection System	A				6,638		6,690	U
17	PTES HUB	A						7,406	U
18	Rocket Systems Launch Program	A				47,741		10,429	U
19	Space Fence	A				11,279			U

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: 3022F Procurement, Space 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
20	Space Mods	A				86,666		64,371	U
21	Spacelift Range System Space	A				90,492		93,774	U
	Total Space Procurement, SF					2,309,722		2,765,572	
	Budget Activity 02: Spares								
	Spares								
22	Spares and Repair Parts	A				1,272		1,282	U
	Total Spares					1,272		1,282	
	Total Procurement, Space Force					2,310,994		2,766,854	

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 3022F: Procurement, Space Force

Appropriation 3022F: Procurement, Space Force

Appropriation 3022F: Procurement, Space Force

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

Lookup Matrix by Model

Model:	10.3	
P-3a Individual Modifications		
Modification Number	**Modification Title**	**Applies to Multiple Models**
10.3	Counter Communications System (CCS) Meadowlands Production	No

Model:	CCS-C	
P-3a Individual Modifications		
Modification Number	**Modification Title**	**Applies to Multiple Models**
1	Heritage Transition	No

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

Model:	None	
P-3a Individual Modifications		
Modification Number	**Modification Title**	**Applies to Multiple Models**
1	Mobile User Objective System	No

Model:	Blackhawk and IIR Flight Nav Systems	
Modification P-40a Aggregated Items Title:	**NAVSTAR Global Positioning**	
Item Number	**Item Title**	**Applies to Multiple Models**
Uncategorized		

Air Force • Budget Estimates FY 2022 • Procurement
Exhibit P-1M, Procurement Programs - Modification Summary
(Listing by Model)

Model:	Blackhawk and IIR Flight Nav Systems	
Modification P-40a Aggregated Items Title:	NAVSTAR Global Positioning	
Item Number	**Item Title**	**Applies to Multiple Models**
NAVSTAR-1	NAVSTAR GPS-OCS COTS UPGRADE	No

Model:	SEWS	
Modification P-40a Aggregated Items Title:	Shared Early Warning (SEW)	
Item Number	**Item Title**	**Applies to Multiple Models**
Uncategorized		
SEW1	Shared Early Warning (SEW)	No

Model:	NORADCheyenneMountainComplex	
Modification P-40a Aggregated Items Title:	Cheyenne Mountain Complex	
Item Number	**Item Title**	**Applies to Multiple Models**
Uncategorized		
NCMCB4	NORAD Cheyenne Mountain Complex Block 04	No
NCMCB5	Block 05	No

Model:	NA	
Modification P-40a Aggregated Items Title:	Ballistic Missile Early Warning	
Item Number	**Item Title**	**Applies to Multiple Models**
Uncategorized		
BMEWS-1	BPP Block 02	No

Model:	NA	
Modification P-40a Aggregated Items Title:	Submarine-Launched Ballistic Missile	
Item Number	**Item Title**	**Applies to Multiple Models**
Uncategorized		
PARCSB1	PARCS Block 01	No
P-3a Individual Modifications		
Modification Number	**Modification Title**	**Applies to Multiple Models**
1	PARCS Block 02	No

Model:	TBD	
Modification P-40a Aggregated Items Title:	Ballistic Missile Early Warning	
Item Number	**Item Title**	**Applies to Multiple Models**
Uncategorized		
BMEWS-3	DPSP	No

Model:	WMN	
Modification P-40a Aggregated Items Title:	Space Lift Range System Modifications	
Item Number	**Item Title**	**Applies to Multiple Models**
Uncategorized		
02-WMN	Western Range Modernization of Network (WMN)	No

Model:	RCDM	
Modification P-40a Aggregated Items Title:	Space Lift Range System Modifications	
Item Number	**Item Title**	**Applies to Multiple Models**
Uncategorized		

Air Force • Budget Estimates FY 2022 • Procurement
Exhibit P-1M, Procurement Programs - Modification Summary
(Listing by Model)

Model:	RCDM	
Modification P-40a Aggregated Items Title:	Space Lift Range System Modifications	
Item Number	**Item Title**	**Applies to Multiple Models**
03-RCDM	Range Command Destruct Modernization (RCDM)	No

Model:	RCF	
P-3a Individual Modifications		
Modification Number	**Modification Title**	**Applies to Multiple Models**
1	Range Communications Facility (RCF)	No

Funding ($ M)

Modification P-40a Item Title P-3a Modification Title	PYS	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026
Exhibit P-40a										
NAVSTAR GPS-OCS COTS UPGRADE	-	-	13.887	0.081	-	0.081	-	-	-	-
Shared Early Warning (SEW)	-	-	0.361	0.363	-	0.363	-	-	-	-
NORAD Cheyenne Mountain Complex Block 04	-	-	2.115	0.200	-	0.200	-	-	-	-
Block 05	-	-	-	1.922	-	1.922	-	-	-	-
BPP Block 02	-	-	4.439	-	-	-	-	-	-	-
DPSP	-	-	4.000	-	-	-	-	-	-	-
PARCS Block 01	-	-	0.798	-	-	-	-	-	-	-
Western Range Modernization of Network (WMN)	-	-	2.639	2.214	-	2.214	-	-	-	-
Range Command Destruct Modernization (RCDM)	-	-	5.088	1.121	-	1.121	-	-	-	-
Exhibit P-3a										
Counter Communications System (CCS) Meadowlands Production	-	0.000	44.167	59.730	0.000	59.730	-	-	-	-
Heritage Transition	-	0.000	0.000	13.529	0.000	13.529	-	-	-	-
SBIRS Mobile System & Fixed Comm Electronics Upgrades	-	0.000	13.177	8.079	0.000	8.079	-	-	-	-
Mobile User Objective System	-	0.000	0.000	45.371	0.000	45.371	-	-	-	-
PARCS Block 02	-	-	0.500	8.449	0.000	8.449	-	-	-	-
Range Communications Facility (RCF)	-	0.000	15.978	16.730	0.000	16.730	-	-	-	-
Totals (Total Obligation Authority)										
Total Obligation Authority	**0.000**	**0.000**	**107.149**	**157.789**	**0.000**	**157.789**	**0.000**	**0.000**	**0.000**	**0.000**

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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 SFB, 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 SFB, 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: 3022F: Procurement, Space Force / BA 01: Space Procurement, SF / BSA 10: 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: N/A
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)*	0.000	0.000	7.823	0.000	-	0.000	-	-	-	-	-	-
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	0.000	0.000	7.823	0.000	-	0.000	-	-	-	-	-	-
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**0.000**	**0.000**	**7.823**	**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 Advanced Extremely High Frequency (EHF) (AEHF) military satellite communications (MILSATCOM) system provides survivable, anti-jam, worldwide, secure communications for the strategic and tactical warfighter. The system is composed of 6 satellites, a mission control segment, and cryptography. AEHF satellites augment and replace the legacy Milstar EHF system, providing much higher capacity and data rate increase over the 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-5 (SV-5) and SV-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 and was transferred to operations February 2020. SV-6 launched on 26 March 2020 and was transferred to operations October 2020.

Space acquisition must respond with speed and agility to emerging adversary threats. The Space & Missile Systems Center (SMC) has transformed the organization and implementation of space acquisition to an enterprise approach, to increase 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 existing capabilities.

Exhibit P-40, Budget Line Item Justification: PB 2022 Air Force	Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 3022F: Procurement, Space Force / BA 01: Space Procurement, SF / BSA 10: 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: N/A

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		- / 0.000	- / -	- / 7.823	- / -	- / -	- / -
P-40	**Total Gross/Weapon System Cost**				**- / 0.000**	**- / 0.000**	**- / 7.823**	**- / 0.000**	**- / -**	**- / 0.000**

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

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

Justification:
No FY 2022 funding requested.

Exhibit P-5, Cost Analysis: PB 2022 Air Force		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 3022F / 01 / 10	**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)*	0.000	-	7.823	-	-	-
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	0.000	-	7.823	-	-	-
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**0.000**	**-**	**7.823**	**-**	**-**	**-**
(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 - AEHF SV5 SV6 Cost																		
Recurring Cost																		
Technical Mission Analysis	-	-	-	-	-	-	-	-	0.300	-	-	-	-	-	-	-	-	-
ACF/IC2 Test Asset Support	-	-	-	-	-	-	-	-	0.605	-	-	-	-	-	-	-	-	-
Subtotal: Recurring Cost	-	-	-	-	-	-	-	-	*0.905*	-	-	-	-	-	-	-	-	-
Subtotal: Space Vehicle - AEHF SV5 SV6 Cost	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	***0.905***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Checkout and Launch - AEHF SV5 SV6 Cost																		
Launch Support Services	-	-	0.000	-	-	-	-	-	5.000	-	-	-	-	-	-	-	-	-
Subtotal: Checkout and Launch - AEHF SV5 SV6 Cost	**-**	**-**	***0.000***	**-**	**-**	**-**	**-**	**-**	***5.000***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Support - AEHF SV5 SV6 Cost																		
FFRDC	-	-	0.000	-	-	-	-	-	0.218	-	-	-	-	-	-	-	-	-
A&AS	-	-	0.000	-	-	-	-	-	1.700	-	-	-	-	-	-	-	-	-
Subtotal: Support - AEHF SV5 SV6 Cost	**-**	**-**	***0.000***	**-**	**-**	**-**	**-**	**-**	***1.918***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Gross/Weapon System Cost	**-**	**-**	**0.000**	**-**	**-**	**-**	**-**	**-**	**7.823**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**

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Exhibit P-40, Budget Line Item Justification: PB 2022 Air Force	Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 3022F: Procurement, Space Force / BA 01: Space Procurement, SF / BSA 10: Space Programs	**P-1 Line Item Number / Title:** AFSCOM / AF Satellite Comm System

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)*	-	0.000	53.326	43.655	-	43.655	-	-	-	-	-	-
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	-	0.000	53.326	43.655	-	43.655	-	-	-	-	-	-
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**-**	**0.000**	**53.326**	**43.655**	**-**	**43.655**	**-**	**-**	**-**	**-**	**-**	**-**
(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 Satellite Control Network (SCN), formerly known as the Air Force Satellite Control Network (AFSCN), is a satellite ground terminal network comprised of two communication nodes (Schriever SFB & Vandenberg SFB) 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 SCN conducts an average of 450+ satellite contacts per day supporting Positioning, Navigation and Timing (PNT); Intelligence, Surveillance and Reconnaissance (ISR); Missile Warning; Communications; Weather; and Research and Development (R&D) satellites for Department of Defense (DoD), Intelligence Community (IC), and National Aeronautics and Space Administration (NASA) operations. While most of the 450+ satellite contacts/day are routine command and control (C2) activities, the SCN 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 SCN supports 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 SCN supports multiple launches delivering 14B worth of satellites to their operational orbits. Finally, the SCN provides Factory Compatibility Testing (FCT) to ensure satellites and launch vehicles can communicate via the SCN before the satellite is launched. These funds are used to procure modernized equipment and SE&I for the SCN to ensure the capability is available to support DoD, Intelligence community, and civil users. Funds may be used to address Diminishing Manufacturing Sources (DMS) issues, support Enterprise Ground Service (EGS), Commercial Augmentation, and cybersecurity Operations.

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, to increase 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 existing capabilities.

SCN 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.

SCN Knowledge-Based Services - (formerly categorized Systems Engineering and Integration, Assistance and Advisory Services, and Federally Funded Research and Development Corporation costs in FY 2021 and prior) 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

Exhibit P-40, Budget Line Item Justification: PB 2022 Air Force		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 3022F: Procurement, Space Force / BA 01: Space Procurement, SF / BSA 10: Space Programs	P-1 Line Item Number / Title: AFSCOM / AF Satellite Comm System	
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		

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.

SCN 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.

SCN Commodity Procurements - The Space 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, 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, (AF)SCN test bed (ATB) replacements, continued cyber defense work, network automation, and Range/Network/Communication obsolescence replacements. Additionally, 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. RBC Hybridization is required to keep ARTS operationally viable. Without it the AFSCN 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 SCN 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. 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.

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.

Exhibit P-40, Budget Line Item Justification: PB 2022 Air Force	Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 3022F: Procurement, Space Force / BA 01: Space Procurement, SF / BSA 10: Space Programs	**P-1 Line Item Number / Title:** AFSCOM / AF Satellite Comm System
ID Code (A=Service Ready, B=Not Service Ready): A	**Program Elements for Code B Items:** N/A / **Other Related Program Elements:** N/A
Line Item MDAP/MAIS Code: N/A	

Exhibits Schedule					Prior Years	FY 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	AF Satellite Comm System		A		- / -	- / -	- / 53.326	- / 43.655	- / -	- / 43.655
P-40	**Total Gross/Weapon System Cost**				**- / -**	**- / 0.000**	**- / 53.326**	**- / 43.655**	**- / -**	**- / 43.655**

*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:

1) SCN Studies (P-5) - FY 2022 funding provides studies that address future planning needs. Studies will also provide critical analysis of architecture alternatives and cyber security requirements.

2) SCN Knowledge-Based Services (P-5) - FY 2022 funding provides critical support to the SMC/ AFSCN missions by maintaining the technical baseline, systems engineering, Information Assurance, cybersecurity analysis, expertise and recommendations.

3) SCN Services (P-5) - FY 2022 funding provides Configuration and Data Management of the AFSCN Baselines, Specifications, Drawing, Notice of Revisions, Specification Change Notices, Configuration Control, Configuration Status Accounting, Configuration Audits, and Configuration Identification.

4) SCN Commodity Procurement (P-5) - FY 2022 funds are critical to ensuring telemetry, tracking, and commanding are provided for over 170 satellites and that satellite emergencies requiring high-power antennas can be supported. These projects include required radome replacements, Defensive Cyber Operations activities and other cyber security related projects. Other FYDP projects include: Boundary Defense, ESD obsolescence, (AF)SCN test bed (ATB) replacements, continued cyber defense work, network automation, and Range/Network/Communication obsolescence replacements. FY 2022 funding is for the 8th and final Hybrid article, which replaces the last obsolete Automated Remote Tracking Station (ARTS) system at TCS.

The proliferation of new space based capabilities is driving major changes in satellite operations, including: increased satellite ops tempos; launch vehicles capable of putting multiple numbers of satellites into orbit at a time; new mission areas and modified satellite support requirements. Currently, the Satellite Control Network (SCN) supports approximately 10 launches per year, which we estimate growing to 20 in 2021 and ultimately over 30 in 2022. The increase in launches will result in a direct increase in SCN Effective Utilization (Ue).

Additionally, FY 2022 funding will allow the program to rapidly respond to implement system resiliency and situational awareness necessary to operate in the contested space domain.

The FY 2022 funding request was reduced by $5.119M to account for the availability of prior year execution balances.

Exhibit P-5, Cost Analysis: PB 2022 Air Force		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 3022F / 01 / 10	**P-1 Line Item Number / Title:** AFSCOM / AF Satellite Comm System	**Item Number / Title [DODIC]:** AF Satellite Comm System
ID Code (A=Service Ready, B=Not Service Ready) : 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)*	-	-	53.326	43.655	-	43.655
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	-	-	53.326	43.655	-	43.655
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**-**	**-**	**53.326**	**43.655**	**-**	**43.655**
(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 - AF Satellite Control Network Cost																		
Non Recurring Cost																		
Commodity Procurements	-	-	-	-	-	-	-	-	29.072	-	-	27.518	-	-	-	-	-	27.518
Subtotal: Non Recurring Cost	-	-	-	-	-	-	-	-	*29.072*	-	-	*27.518*	-	-	-	-	-	*27.518*
Subtotal: Hardware - AF Satellite Control Network Cost	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	***29.072***	**-**	**-**	***27.518***	**-**	**-**	**-**	**-**	**-**	***27.518***
Logistics - AF Satellite Comm System Cost																		
Recurring Cost																		
INTERIM SUPPLY SPT - Labor	-	-	-	-	-	-	-	-	0.450	-	-	-	-	-	-	-	-	-
INTERIM SUPPLY SPT - Materiel	-	-	-	-	-	-	-	-	4.478	-	-	-	-	-	-	-	-	-
Technical Mission Analysis	-	-	-	-	-	-	-	-	6.189	-	-	-	-	-	-	-	-	-
Test & Evaluation	-	-	-	-	-	-	-	-	1.583	-	-	-	-	-	-	-	-	-
Enterprise Systems Engineering and Integration (SE&I)	-	-	-	-	-	-	-	-	10.564	-	-	-	-	-	-	-	-	-
Studies	-	-	-	-	-	-	-	-	-	-	-	0.228	-	-	-	-	-	0.228
Knowledge-Based Services	-	-	-	-	-	-	-	-	-	-	-	15.807	-	-	-	-	-	15.807
Subtotal: Recurring Cost	-	-	-	-	-	-	-	-	*23.264*	-	-	*16.035*	-	-	-	-	-	*16.035*

Exhibit P-5, Cost Analysis: PB 2022 Air Force		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 3022F / 01 / 10	P-1 Line Item Number / Title: AFSCOM / AF Satellite Comm System	Item Number / Title [DODIC]: AF Satellite Comm System
ID Code (A=Service Ready, B=Not Service Ready) : 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: Logistics - AF Satellite Comm System Cost	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	***23.264***	**-**	**-**	***16.035***	**-**	**-**	**-**	**-**	**-**	***16.035***
Support - AF Satellite Comm System Cost																		
Services	-	-	-	-	-	-	-	-	0.990	-	-	0.102	-	-	-	-	-	0.102
Subtotal: Support - AF Satellite Comm System Cost	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	***0.990***	**-**	**-**	***0.102***	**-**	**-**	**-**	**-**	**-**	***0.102***
Gross/Weapon System Cost	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**53.326**	**-**	**-**	**43.655**	**-**	**-**	**-**	**-**	**-**	**43.655**

Remarks:
Starting with the FY 2021 budget justification, SCN funding will be aligned with its AML-Exempt categories.
In FY21, SCN received a Congressional Add of $5.00M for cyber defense, to be executed as part of Commodity Projects.

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Exhibit P-40, Budget Line Item Justification: PB 2022 Air Force	Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 3022F: Procurement, Space Force / BA 01: Space Procurement, SF / BSA 10: Space Programs	**P-1 Line Item Number / Title:** CTRSPC / Counterspace Systems

ID Code (A=Service Ready, B=Not Service Ready): A	Program Elements for Code B Items: N/A	Other Related Program Elements: 1206421F
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)*	-	0.000	49.155	64.804	-	64.804	-	-	-	-	-	-
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	-	0.000	49.155	64.804	-	64.804	-	-	-	-	-	-
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**-**	**0.000**	**49.155**	**64.804**	**-**	**64.804**	**-**	**-**	**-**	**-**	**-**	**-**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Flyaway Unit Cost *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-

Description:

The Counter Communications System (CCS) Pre-planned Product Improvement (P3I) program provides expeditionary, deployable, reversible offensive space control (OCS) effects applicable across the full spectrum of conflict. It prevents adversary satellite communications (SATCOM) in the Area of Responsibility (AOR) including Command and Control (C2), Early Warning, and Propaganda; and hosts Rapid Reaction Capabilities in response to Urgent Needs. Acquisition Decision Memorandum (24 April 2009) directed all capabilities identified in the October 2006 CCS Block 20, Joint Requirements Oversight Council (JROC) approved Capability Development Document (CDD) shall be accomplished as P3I upgrades to the CCS Block 10.

Funding for this exhibit is in Program Element (PE) 1206421SF, Counterspace Systems. Developmental funding for CCS is in PE 1206421SF, Project 65A001 Counter Satellite Communications System.

Bounty Hunter (BH) is a ground-based, deployable, tactical Space Electronic Warfare (ES) system that provides SATCOM geolocation and interference detection capabilities that support the Defensive Space Control of US systems in a specific AOR. BH provides the capability to monitor, detect, characterize and geolocate friendly and unfriendly electro-magnetic interference (EMI) across multiple radio frequency bands in support of Command, Control, Communications, Computers, and Intelligence (C4I) systems by US Joint forces. Continuing annual agile development is needed to meet new user needs in an ever changing threat environment.

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.

Developmental funding for BH is in PE 1206421SF, Counterspace Systems, Project 65A013 Bounty Hunter.

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, to increase 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 existing capabilities.

Exhibit P-40, Budget Line Item Justification: PB 2022 Air Force	Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 3022F: Procurement, Space Force / BA 01: Space Procurement, SF / BSA 10: Space Programs	**P-1 Line Item Number / Title:** CTRSPC / Counterspace Systems
ID Code (A=Service Ready, B=Not Service Ready): A	**Program Elements for Code B Items:** N/A — **Other Related Program Elements:** 1206421F
Line Item MDAP/MAIS Code: N/A	

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-3a	10.3 / Counter Communications System (CCS) Meadowlands Production (Capability Improvement)		A		- / -	- / 0.000	- / 44.167	- / 59.730	- / 0.000	- / 59.730
P-5	Counterspace Systems	P-5a	A		- / -	- / -	- / 4.988	- / 5.074	- / -	- / 5.074
P-40	**Total Gross/Weapon System Cost**				**- / -**	**- / 0.000**	**- / 49.155**	**- / 64.804**	**- / -**	**- / 64.804**

*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:
Counter Communications System (CCS): FY 2022 funding is for the production of seven CCS Meadowlands systems (includes signal processing, radio frequency, protonic, and other communications equipment), remote operations suites, mission emulators, training equipment, antenna, and associated spares. Implement system resiliency and situational awareness necessary to operate in the contested space domain. Activities may include, but are not limited to program office support, studies, technical analysis, etc.

Bounty Hunter (BH): FY 2022 funding procures one additional BH system.

Exhibit P-3a, Individual Modification: PB 2022 Air Force		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 3022F / 01 / 10	**P-1 Line Item Number / Title:** CTRSPC / Counterspace Systems	**Modification Number / Title:** 10.3 / Counter Communications System (CCS) Meadowlands Production
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)*	-	0.000	44.167	59.730	0.000	59.730
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	-	0.000	44.167	59.730	0.000	59.730
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**-**	**0.000**	**44.167**	**59.730**	**0.000**	**59.730**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)						
Initial Spares *($ in Millions)*	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Millions)*	-	-	-	-	-	-

Description:

The 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.

Funding for this exhibit is in Program Element (PE) 1206421SF, Counterspace Systems. Developmental funding for CCS is in PE 1206421SF, Project 65A001 Counter Satellite Communications System.

Milestone/Development Status

In process.

Exhibit P-3a, Individual Modification: PB 2022 Air Force		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 3022F / 01 / 10	**P-1 Line Item Number / Title:** CTRSPC / Counterspace Systems	**Modification Number / Title:** 10.3 / Counter Communications System (CCS) Meadowlands Production
ID Code (A=Service Ready, B=Not Service Ready) : A	**MDAP/MAIS Code:**	
Models of Systems Affected: 10.3	**Modification Type:** Capability Improvement	**Related RDT&E PEs:** 1206421F

Financial Plan	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*
Procurement						
Modification Item 1 of 1: Hardware End Item						
B Kits						
Recurring						
Hardware End Item:EQUIPMENT Group B (Active)	- / -	- / -	5 / 43.037	7 / 58.312	- / -	7 / 58.312
Subtotal: Recurring	- / -	- / -	- / *43.037*	- / *58.312*	- / -	- / *58.312*
Subtotal: Hardware End Item	- / -	- / -	- / *43.037*	- / *58.312*	- / -	- / *58.312*
Subtotal: Procurement, All Modification Items	- / -	- / -	- / *43.037*	- / *58.312*	- / -	- / *58.312*
Support *(All Modification Items)*						
FFRDC	- / -	- / -	- / 0.432	- / 0.474	- / -	- / 0.474
A&AS	- / -	- / -	- / 0.698	- / 0.725	- / -	- / 0.725
Subtotal: Support	- / -	- / -	- / *1.130*	- / *1.199*	- / -	- / *1.199*
Installation						
Modification Item 1 of 1: Hardware End Item	- / -	- / -	- / -	5 / 0.219	- / -	5 / 0.219
Subtotal: Installation	- / -	- / -	- / -	*5 / 0.219*	- / -	*5 / 0.219*
Total						
Total Cost (Procurement + Support + Installation)	**-**	**0.000**	**44.167**	**59.730**	**0.000**	**59.730**

Exhibit P-3a, Individual Modification: PB 2022 Air Force		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 3022F / 01 / 10	**P-1 Line Item Number / Title:** CTRSPC / Counterspace Systems	**Modification Number / Title:** 10.3 / Counter Communications System (CCS) Meadowlands Production

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

Modification Item 1 of 1: Hardware End Item

Manufacturer Information

Manufacturer Name: TBD	Manufacturer Location: TBD
Administrative Leadtime *(in Months)*: 3	Production Leadtime *(in Months)*: 12

Dates	FY 2020	FY 2021	FY 2022
Contract Dates		Jun 2021	Jan 2022
Delivery Dates		Jun 2022	Jan 2023

Installation Information

Method of Implementation: Contractor Facility

Installation Cost	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*
Prior Years	- / -	- / -	- / -	- / -	- / -	- / -
FY 2020	- / -	- / -	- / -	- / -	- / -	- / -
FY 2021	- / -	- / -	- / -	5 / 0.219	- / -	5 / 0.219
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -
Total	- / -	- / -	- / -	5 / 0.219	- / -	5 / 0.219

Installation Schedule

	PYS	FY 2020				FY 2021				FY 2022			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
In	0	-	-	-	-	-	-	-	-	-	-	2	3
Out	0	-	-	-	-	-	-	-	-	-	-	2	3

Exhibit P-5, Cost Analysis: PB 2022 Air Force		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 3022F / 01 / 10	P-1 Line Item Number / Title: CTRSPC / Counterspace Systems	Item Number / Title [DODIC]: Counterspace Systems
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)*	-	-	4.988	5.074	-	5.074
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	-	-	4.988	5.074	-	5.074
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**-**	**-**	**4.988**	**5.074**	**-**	**5.074**
(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 - Counterspace Systems Cost																		
Recurring Cost																		
Procure Bounty Hunter(†)	-	-	-	-	-	-	4.988	1	4.988	5.074	1	5.074	-	-	-	5.074	1	5.074
Subtotal: Recurring Cost	-	-	-	-	-	-	-	-	*4.988*	-	-	*5.074*	-	-	-	-	-	*5.074*
Subtotal: Hardware - Counterspace Systems Cost	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	***4.988***	**-**	**-**	***5.074***	**-**	**-**	**-**	**-**	**-**	***5.074***
Gross/Weapon System Cost	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**4.988**	**-**	**-**	**5.074**	**-**	**-**	**-**	**-**	**-**	**5.074**

Remarks:

Bounty Hunter (BH) is a ground-based, deployable, tactical Space Electronic Warfare (ES) system that provides SATCOM geolocation and interference detection capabilities that support the Defensive Space Control of US systems in a specific AOR. BH provides the capability to monitor, detect, characterize and geolocate friendly and unfriendly electro-magnetic interference (EMI) across multiple radio frequency bands in support of Command, Control, Communications, Computers, and Intelligence (C4I) systems by US Joint forces. Continuing annual agile development is needed to meet new user needs in an ever changing threat environment.

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. Funds requested in FY 2021 are for Bounty Hunter.

Developmental funding for BH is in PE 1206421SF, Counterspace Systems, Project 65A013 Bounty Hunter.

Bounty Hunter (BH): FY 2022 is for one additional BH system.

(†) 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: 3022F / 01 / 10	P-1 Line Item Number / Title: CTRSPC / Counterspace Systems	Item Number / Title [DODIC]: Counterspace Systems

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
Procure Bounty Hunter		2021	Multiple / Various	PO	CPSG	Nov 2020	Mar 2021	1	4.988	Y		
Procure Bounty Hunter		2022	Multiple / Various	PO	CPSG	Nov 2021	Mar 2022	1	5.074	Y		

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Exhibit P-40, Budget Line Item Justification: PB 2022 Air Force	Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 3022F: Procurement, Space Force / BA 01: Space Procurement, SF / BSA 10: 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): B	Program Elements for Code B Items: 1203001SF	Other Related Program Elements: 0303001F, 0303601F, 1203001F
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)*	-	0.000	61.190	39.444	-	39.444	-	-	-	-	-	-
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	-	0.000	61.190	39.444	-	39.444	-	-	-	-	-	-
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**-**	**0.000**	**61.190**	**39.444**	**-**	**39.444**	**-**	**-**	**-**	**-**	**-**	**-**
(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 Family of Advanced Beyond Line-of-Sight Terminals (FAB-T) Command Post Terminals (CPT) program replaces legacy Milstar terminals and will provide Extremely High Frequency (EHF), protected high data rate communication for nuclear and conventional forces to include Presidential and National Voice Conferencing (PNVC).

FAB-T CPT will provide this new, highly secure, state-of-the-art capability for DoD platforms to include strategic platforms and airborne/ground command posts via Milstar, AEHF, and Enhanced Polar System (EPS) satellites. FAB-T terminals will also support the critical command and control (C2) of the Milstar, AEHF and EPS satellite constellations. In June 2014, the Department of the Air Force down-selected to Raytheon for production of FAB-T Command Post Terminals (CPT). Production contract options to produce CPT terminals were exercised after a successful Milestone C decision was approved September 1, 2015. In FY 2019, the FAB-T PMO executed the final LRIP procurement to complete the total of 84 of 84 total LRIP CPTs on contract. CPT has now procured 41 Ground Fixed, 20 Ground Transportable, and 23 Airborne Antennas. In FY 2022, FAB-T CPT will continue to pursue activities that ensure FAB-T CPT terminal interoperability with the full AEHF satellite constellation.

The PNVC capability is a critical element of the Nuclear Command, Control, and Communications (NC3) system. PNVC is the Survivable Emergency Conferencing Network (SECN) replacement capability which provides anti-jam, anti-scintillation, survivable, and endurable voice communications through the AEHF satellite system for national and strategic users. Equipment upgrades required for this system include the development and production of several new components by other organizations, including the Baseband Interface Group (BIG) and Multi-Stream Summing Device (MSD III) for airborne users and the Baseband Kit (BBK) / PNVC Equipment enclosure for mobile users.

The PNVC Integrator is responsible for all program elements and funding, including those related to the Defense Information Systems Agency (DISA) and National Security Agency (NSA) components of the PNVC system, in accordance with the transfer directed in the FY 2018 National Defense Authorization Act, Sec. 1661. PNVC funds were transferred from DISA to the AF beginning in FY 2021, and the PNVC Integrator will continue to procure remaining PNVC equipment until all fielding is complete.

PNVC has procured 26 BIGs, these are reflected in previous Program Exhibits in the Prior Years through FY 2015 - FY 2020.

FAB-T CPT was reflected in previous Program Exhibits in the Prior Years through FY 2014 - 2020. This exhibit is funded in PE 1203001SF.

Exhibit P-40, Budget Line Item Justification: PB 2022 Air Force	Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 3022F: Procurement, Space Force / BA 01: Space Procurement, SF / BSA 10: 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): B	Program Elements for Code B Items: 1203001SF	Other Related Program Elements: 0303001F, 0303601F, 1203001F

Line Item MDAP/MAIS Code: N/A

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		B		- / -	- / 0.000	- / 61.190	- / 39.444	- / -	- / 39.444
P-40	**Total Gross/Weapon System Cost**				**- / -**	**- / 0.000**	**- / 61.190**	**- / 39.444**	**- / -**	**- / 39.444**

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

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

Justification:
In FY 2022, 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 2022, PNVC will continue procuring BBK enclosures for mobile users, and any remaining PNVC equipment required for fielding activities.

Exhibit P-5, Cost Analysis: PB 2022 Air Force		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 3022F / 01 / 10	**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) : 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)*	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	-	0.000	61.190	39.444	-	39.444
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	-	0.000	61.190	39.444	-	39.444
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**-**	**0.000**	**61.190**	**39.444**	**-**	**39.444**
(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 - Presidential and National Voice Conferencing (PNVC) Cost																		
Recurring Cost																		
BBKs / PNVC Equipment	-	-	-	-	-	0.000	-	-	5.240	-	-	5.799	-	-	-	-	-	5.799
Subtotal: Recurring Cost	-	-	-	-	-	*0.000*	-	-	*5.240*	-	-	*5.799*	-	-	-	-	-	*5.799*
Subtotal: Hardware - Presidential and National Voice Conferencing (PNVC) Cost	**-**	**-**	**-**	**-**	**-**	***0.000***	**-**	**-**	***5.240***	**-**	**-**	***5.799***	**-**	**-**	**-**	**-**	**-**	***5.799***
Hardware - Family of Beyond Line-of-Sight Terminals Command Post Terminal (FAB-T CPT) Cost																		
Recurring Cost																		
FAB-T Terminals (PE 33601F/33001F)	-	-	-	-	-	0.000	-	-	23.324	-	-	3.118	-	-	-	-	-	3.118
Technical Mission Analysis	-	-	-	-	-	0.000	-	-	0.850	-	-	0.989	-	-	-	-	-	0.989
Subtotal: Recurring Cost	-	-	-	-	-	*0.000*	-	-	*24.174*	-	-	*4.107*	-	-	-	-	-	*4.107*
Subtotal: Hardware - Family of Beyond Line-of-Sight Terminals Command Post Terminal (FAB-T CPT) Cost	**-**	**-**	**-**	**-**	**-**	***0.000***	**-**	**-**	***24.174***	**-**	**-**	***4.107***	**-**	**-**	**-**	**-**	**-**	***4.107***
Logistics - Family of Beyond Line-of-Sight Terminals Cost																		
Recurring Cost																		
Interim Contractor Support	-	-	-	-	-	-	-	-	29.468	-	-	15.234	-	-	-	-	-	15.234
Depot Activation	-	-	-	-	-	-	-	-	0.815	-	-	9.243	-	-	-	-	-	9.243

Exhibit P-5, Cost Analysis: PB 2022 Air Force		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 3022F / 01 / 10	**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) : B		**MDAP/MAIS Code:**

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

Cost Elements	Prior Years			FY 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: Recurring Cost	-	-	-	-	-	-	-	-	*30.283*	-	-	*24.477*	-	-	-	-	-	*24.477*
Subtotal: Logistics - Family of Beyond Line-of-Sight Terminals Cost	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	***30.283***	**-**	**-**	***24.477***	**-**	**-**	**-**	**-**	**-**	***24.477***
Support - Family of Beyond Line-of-Sight Terminals Command Post Terminal (FAB-T CPT) Cost																		
FAB-T A&AS	-	-	-	-	-	0.000	-	-	0.560	-	-	3.494	-	-	-	-	-	3.494
Other Support	-	-	-	-	-	0.000	-	-	0.933	-	-	1.567	-	-	-	-	-	1.567
Subtotal: Support - Family of Beyond Line-of-Sight Terminals Command Post Terminal (FAB-T CPT) Cost	**-**	**-**	**-**	**-**	**-**	***0.000***	**-**	**-**	***1.493***	**-**	**-**	***5.061***	**-**	**-**	**-**	**-**	**-**	***5.061***
Gross/Weapon System Cost	**-**	**-**	**-**	**-**	**-**	**0.000**	**-**	**-**	**61.190**	**-**	**-**	**39.444**	**-**	**-**	**-**	**-**	**-**	**39.444**

Remarks:
This P-Doc incorporates PE 1203001SF for FAB-T / PNVC.

Exhibit P-40, Budget Line Item Justification: PB 2022 Air Force	Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 3022F: Procurement, Space Force / BA 01: Space Procurement, SF / BSA 10: 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: 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)*	-	0.000	3.299	3.316	-	3.316	-	-	-	-	-	-
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	-	0.000	3.299	3.316	-	3.316	-	-	-	-	-	-
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**-**	**0.000**	**3.299**	**3.316**	**-**	**3.316**	**-**	**-**	**-**	**-**	**-**	**-**
(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:

Funding for this exhibit is contained in PE 1203173SF and PE 1203174SF.

PE 1203173SF Research & Development (R&D) Space and Missile Operations

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) to support prototype, experimental, demonstration, and operational satellites within the RDT&E Support Complex (RSC) and Mobile Range Facility (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 USSF and DoD missions and transitions designated satellite missions to the operational command upon user needs. 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, to increase 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 existing 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 U.S. Space Force Analysis Center Advanced Virtual Analysis Capability (AVAC) system, a stand-alone system that provides a crosscutting capability to conduct, support, and report analysis on a myriad of tools, data, models and simulations. AVAC allows leadership to make decisions based on quantifiable operational impacts using various vignettes and studies applied to space and cyber assets. Funds in the General Information Technology (Space) line procures 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: 3022F: Procurement, Space Force / BA 01: Space Procurement, SF / BSA 10: 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: N/A
Line Item MDAP/MAIS Code: N/A		

DISTRIBUTED COMMUNICATIONS ARCHITECTURE: Funds in the General Information Technology (Space) line 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: Funds in the General Information Technology (Space) line procures IT hardware & software infrastructure for the AVAC system. The system provides classified modeling and simulation tools for the Space Force 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, SF, PE 1203174SF, SIIRTD.

Justification:

PE 1203173SF RDSMO

FY 2022 funding ($1.938M) will be used for critical recapitalization of RDSMO ground enterprise hardware to include: communication systems, Telemetry, Tracking, and Commanding (TT&C) hardware, antenna systems, and common user equipment to support the transition and implementation of prototype/experimental space missions at RSC and SAFB C2 environments. This recapitalization is essential to support continued integration and prototyping of missions including: Long Duration Propulsive Evolved Expendable Launch Vehicle (EELV) Secondary Payload Adapter (ESPA) (LDPE)1&2 missions, the USSF-12 mission, Navigation Technology Satellite 3 (NTS-3) mission, the Quasi-Zenith Satellite System (QZSS) mission, and the LDPE and Tetra follow-on prototyping missions. The MMSOC C2 baseline will continue to be supported through FY 2026 for legacy missions being operated at the RSC and SAFB.

Additionally, FY 2022 funding will allow the program to rapidly respond to implement system resiliency and situational awareness necessary to operate in the contested space domain. Activities include, but are not limited to, program office support, studies, and technical analysis.

PE 1203174SF SIIRTD

FY 2022 funding ($1.378M) will modify modeling and simulation tools that U.S. Space Force's Space Analysis Center uses for operations research, military utility analyses, tradeoff studies, and other evaluations of space mission areas to guide planning, programming, requirements generation, analyses of alternatives, and other activities. This effort will incorporate changes in fielded and projected space operational capabilities, as well as technical improvements, into the group's software tools to ensure their data and technology remain current. Its innovation, education, and training activities foster solutions to operational deficiencies and enhance the integration of space systems into Space Force operations, thereby enabling service and joint warfighters to realize the full potential of existing and planned space capabilities.

Exhibit P-40, Budget Line Item Justification: PB 2022 Air Force	Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 3022F: Procurement, Space Force / BA 01: Space Procurement, SF / BSA 10: 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: 1203269SF	Other Related Program Elements: 1203269F
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)*	-	-	2	2	-	2	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	-	0.000	597.796	601.418	-	601.418	-	-	-	-	-	-
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	-	0.000	597.796	601.418	-	601.418	-	-	-	-	-	-
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**-**	**0.000**	**597.796**	**601.418**	**-**	**601.418**	**-**	**-**	**-**	**-**	**-**	**-**
(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)*	-	-	298.898	300.709	-	300.709	-	-	-	-	-	-

Description:

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

The system is composed of three segments: User Equipment (funded under Program Element (PE) 1203164F and 1203164SF), Space (funded under PE 1203265F, 1203265SF, 1203269F and 1203269SF), and a Control Network (funded under PE 1206423F, 1206423SF, 1203165F and 1203165SF). RDT&E,AF funding for GPS IIIF 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 delivers 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), 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 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

Exhibit P-40, Budget Line Item Justification: PB 2022 Air Force		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 3022F: Procurement, Space Force / BA 01: Space Procurement, SF / BSA 10: 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:** 1203269SF	**Other Related Program Elements:** 1203269F
Line Item MDAP/MAIS Code: 590		

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 Procurement, Space Force (PSF) 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, to increase 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 existing capabilities.

Funding for this exhibit is contained in PE 1203269SF.

Exhibit P-40, Budget Line Item Justification: PB 2022 Air Force	Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 3022F: Procurement, Space Force / BA 01: Space Procurement, SF / BSA 10: 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: 1203269SF	Other Related Program Elements: 1203269F

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		- / -	- / 0.000	2 / 597.796	2 / 601.418	- / -	2 / 601.418
P-40	**Total Gross/Weapon System Cost**				**- / -**	**- / 0.000**	**2 / 597.796**	**2 / 601.418**	**- / -**	**2 / 601.418**

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

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

Justification:
FY 2022 funding procures two GPS IIIF production satellite (SV16-17) in addition to any recurring, SV specific support equipment, and tooling. FY 2022 funding also procures independent technical, systems engineering, and integration support critical to managing production milestones, mission assurance activities, and technology refreshes. Additionally, FY 2022 funding allows the program to rapidly respond to implement system resiliency and situational awareness necessary to operate in the contested space domain. Activities include, but are not limited to, program office support, studies, technical analysis, etc.

Exhibit P-5, Cost Analysis: PB 2022 Air Force		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 3022F / 01 / 10	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)*	-	-	2	2	-	2
Gross/Weapon System Cost *($ in Millions)*	-	0.000	597.796	601.418	-	601.418
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	-	0.000	597.796	601.418	-	601.418
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**-**	**0.000**	**597.796**	**601.418**	**-**	**601.418**
(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)*	-	-	298.898	300.709	-	300.709

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 - GPSIII Follow On Cost																		
Recurring Cost																		
GPS IIIF(†)	-	-	-	-	-	-	271.211	2	542.422	271.049	2	542.097	-	-	-	271.049	2	542.097
GPS IIIF Enterprise SE&I	-	-	-	-	-	0.000	-	-	0.000	-	-	5.027	-	-	-	-	-	5.027
GPS IIIF Technical Mission Analysis	-	-	-	-	-	0.000	-	-	8.375	-	-	8.314	-	-	-	-	-	8.314
Subtotal: Recurring Cost	-	-	-	-	-	*0.000*	-	-	*550.797*	-	-	*555.438*	-	-	-	-	-	*555.438*
Subtotal: Space Vehicle - GPSIII Follow On Cost	**-**	**-**	**-**	**-**	**-**	***0.000***	**-**	**-**	***550.797***	**-**	**-**	***555.438***	**-**	**-**	**-**	**-**	**-**	***555.438***
Support - GPSIII Follow On Cost																		
GPS IIIF FFRDC	-	-	-	-	-	0.000	-	-	6.782	-	-	5.536	-	-	-	-	-	5.536
GPS IIIF A&AS	-	-	-	-	-	0.000	-	-	40.092	-	-	40.314	-	-	-	-	-	40.314
GPS IIIF Other Support	-	-	-	-	-	0.000	-	-	0.125	-	-	0.130	-	-	-	-	-	0.130
Subtotal: Support - GPSIII Follow On Cost	**-**	**-**	**-**	**-**	**-**	***0.000***	**-**	**-**	***46.999***	**-**	**-**	***45.980***	**-**	**-**	**-**	**-**	**-**	***45.980***
Gross/Weapon System Cost	**-**	**-**	**-**	**-**	**-**	**0.000**	**298.898**	**2**	**597.796**	**300.709**	**2**	**601.418**	**-**	**-**	**-**	**300.709**	**2**	**601.418**

(†) 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: 3022F / 01 / 10	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(†)		2021	Lockheed Martin / Littleton, CO	C / FPIF	SMC, LA AFB, CA	Oct 2020	Nov 2026	2	271.211	N	Jan 2021	
GPS IIIF(†)		2022	Lockheed Martin / Littleton, CO	C / FPIF	SMC, LA AFB, CA	Jan 2022	Jun 2028	2	271.049	N	Jan 2021	

(†) 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: 3022F / 01 / 10	**P-1 Line Item Number / Title:** GPS03C / GPSIII Follow On	**Item Number / Title [DODIC]:** GPSIII Follow On

Cost Elements (Units in Each)							Fiscal Year 2021												Fiscal Year 2022											BALANCE
										Calendar Year 2021														Calendar Year 2022								
OCO	MFR #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2020	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	2021	AF	2	0	2	A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
	1	2022	AF	2	0	2																A -	-	-	-	-	-	-	-	2
							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: 3022F / 01 / 10	**P-1 Line Item Number / Title:** GPS03C / GPSIII Follow On	**Item Number / Title [DODIC]:** GPSIII Follow On

Cost Elements (Units in Each)							Fiscal Year 2023												Fiscal Year 2024											BALANCE
							Calendar Year 2023												Calendar Year 2024											
OCO	MFR #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2022	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	2021	AF	2	0	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
	1	2022	AF	2	0	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
							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: 3022F / 01 / 10	**P-1 Line Item Number / Title:** GPS03C / GPSIII Follow On	**Item Number / Title [DODIC]:** GPSIII Follow On

Cost Elements (Units in Each)							Fiscal Year 2025												Fiscal Year 2026											BALANCE
							Calendar Year 2025												Calendar Year 2026											
OCO	MFR #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2024	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	2021	AF	2	0	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
	1	2022	AF	2	0	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
							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: 3022F / 01 / 10	**P-1 Line Item Number / Title:** GPS03C / GPSIII Follow On	**Item Number / Title [DODIC]:** GPSIII Follow On

Cost Elements (Units in Each)							Fiscal Year 2027												Fiscal Year 2028											BALANCE
							Calendar Year 2027												Calendar Year 2028											
OCO	MFR #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2026	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	2021	AF	2	0	2	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1							0
	1	2022	AF	2	0	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	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: 3022F / 01 / 10	P-1 Line Item Number / Title: GPS03C / GPSIII Follow On	Item Number / Title [DODIC]: GPSIII Follow On

Cost Elements (Units in Each)							Fiscal Year 2029												Fiscal Year 2030												BALANCE
							Calendar Year 2029												Calendar Year 2030													
OCO	MFR #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2028	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	2021	AF	2	2	0																									0
	1	2022	AF	2	1	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: 3022F / 01 / 10	**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 / Year)			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			4	0	4	77	81	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).

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Exhibit P-40, Budget Line Item Justification: PB 2022 Air Force	Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 3022F: Procurement, Space Force / BA 01: Space Procurement, SF / BSA 10: Space Programs	**P-1 Line Item Number / Title:** GPSIII / GPS III Space Segment

ID Code (A=Service Ready, B=Not Service Ready): B	Program Elements for Code B Items: 1203265SF	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)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	-	0.000	20.122	84.452	-	84.452	-	-	-	-	-	-
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	-	0.000	20.122	84.452	-	84.452	-	-	-	-	-	-
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**-**	**0.000**	**20.122**	**84.452**	**-**	**84.452**	**-**	**-**	**-**	**-**	**-**	**-**
(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 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 and 1203164SF), Space (funded under PE 1203265F, 1203265SF,1203165F, 1203269F and 1203269SF), and a Control Network (funded under PE 1206423F, 1206423SF, 1203165F and 1203165SF). 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, AF (SPAF) regular procurement.

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, to increase innovation and resiliency, leveraging international, commercial, and mission partnerships, and managing program/project priorities according to an integrated unclassified/

Exhibit P-40, Budget Line Item Justification: PB 2022 Air Force		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 3022F: Procurement, Space Force / BA 01: Space Procurement, SF / BSA 10: Space Programs	P-1 Line Item Number / Title: GPSIII / GPS III Space Segment	
ID Code (A=Service Ready, B=Not Service Ready): B	Program Elements for Code B Items: 1203265SF	Other Related Program Elements: 1203265F
Line Item MDAP/MAIS Code: 590		

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 existing capabilities.

SV01 and SV02 were successfully launched on December 2018 and August 2019 respectively. SV03 was successfully launched in June 2020 and operational accepted in July 2020. SV04 was successfully launched in November 2020. SV05 achieved Available for Launch (AFL) of May 2020 and has a projected Initial Launch Capability (ILC) of July 2021. SV06 has a projected AFL of April 2021 and a projected ILC of November 2021. SV07 has a projected AFL of May 2021 and a projected ILC of March 2022. SV08 has a projected AFL of July 2021 and a projected ILC of July 2022.

FY 2022 funding increases from FY 2021 due to a need for funds for SV09/10 production & launch readiness.

The FY 2022 funding request was reduced by -2.582 million to account for the availability of prior year execution balances.

Funding for this exhibit is contained in PE 1203265SF.

Exhibit P-40, Budget Line Item Justification: PB 2022 Air Force	Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 3022F: Procurement, Space Force / BA 01: Space Procurement, SF / BSA 10: Space Programs	**P-1 Line Item Number / Title:** GPSIII / GPS III Space Segment

ID Code (A=Service Ready, B=Not Service Ready): B	Program Elements for Code B Items: 1203265SF	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	GPS III Space Segment		B		- / -	- / 0.000	- / 20.122	- / 84.452	- / -	- / 84.452
P-40	**Total Gross/Weapon System Cost**				**- / -**	**- / 0.000**	**- / 20.122**	**- / 84.452**	**- / -**	**- / 84.452**

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

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

Justification:
FY 2022 funding will procure independent technical and integration support critical to managing SVs 06-10 production milestones, on-orbit incentive fees, storage, mission readiness testing, mission assurance activities, and launch preparation events. Also funds SV04-06 final on-orbit incentive fees. SV07 and SV08 have a planned ILC of FY 2022 and SV09-10 has a planned ILC for FY2023.

Additionally, FY 2022 funding will allow the program to rapidly respond to implement system resiliency and situational awareness necessary to operate in the contested space domain. Activities include, but are not limited to, program office support, studies, technical analysis, etc.

Exhibit P-5, Cost Analysis: PB 2022 Air Force		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 3022F / 01 / 10	**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) : 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)*	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	-	0.000	20.122	84.452	-	84.452
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	-	0.000	20.122	84.452	-	84.452
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**-**	**0.000**	**20.122**	**84.452**	**-**	**84.452**
(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 - GPS III Space Segment Cost																		
Recurring Cost																		
GPS III SV03-10	-	-	-	-	-	0.000	-	-	2.367	-	-	23.882	-	-	-	-	-	23.882
GPS III SV03-10 Enterprise SE&I	-	-	-	-	-	-	-	-	0.000	-	-	1.726	-	-	-	-	-	1.726
GPS III SV03-10 Technical Mission Analysis	-	-	-	-	-	-	-	-	3.283	-	-	3.837	-	-	-	-	-	3.837
Subtotal: Recurring Cost	-	-	-	-	-	*0.000*	-	-	*5.650*	-	-	*29.445*	-	-	-	-	-	*29.445*
Subtotal: Space Vehicle - GPS III Space Segment Cost	**-**	**-**	**-**	**-**	**-**	***0.000***	**-**	**-**	***5.650***	**-**	**-**	***29.445***	**-**	**-**	**-**	**-**	**-**	***29.445***
Checkout and Launch - GPS III Space Segment Cost																		
GPS III SV03-10 Launch Services	-	-	-	-	-	-	-	-	2.297	-	-	18.998	-	-	-	-	-	18.998
GPS III SV03-10 On-Orbit Incentive	-	-	-	-	-	-	-	-	4.500	-	-	6.000	-	-	-	-	-	6.000
GPS III SV03-10 Storage and MRT	-	-	-	-	-	-	-	-	0.300	-	-	12.994	-	-	-	-	-	12.994
Subtotal: Checkout and Launch - GPS III Space Segment Cost	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	***7.097***	**-**	**-**	***37.992***	**-**	**-**	**-**	**-**	**-**	***37.992***
Support - GPS III Space Segment Cost																		
GPS III SV 03-10 FFRDC	-	-	-	-	-	-	-	-	2.915	-	-	5.299	-	-	-	-	-	5.299
GPS III SV 03-10 A&AS	-	-	-	-	-	-	-	-	4.220	-	-	11.476	-	-	-	-	-	11.476

Exhibit P-5, Cost Analysis: PB 2022 Air Force		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 3022F / 01 / 10	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) : B		MDAP/MAIS Code:

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

Cost Elements	Prior Years			FY 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)
GPS III SV 03-10 Other Support	-	-	-	-	-	-	-	-	0.240	-	-	0.240	-	-	-	-	-	0.240
Subtotal: Support - GPS III Space Segment Cost	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	***7.375***	**-**	**-**	***17.015***	**-**	**-**	**-**	**-**	**-**	***17.015***
Gross/Weapon System Cost	**-**	**-**	**-**	**-**	**-**	**0.000**	**-**	**-**	**20.122**	**-**	**-**	**84.452**	**-**	**-**	**-**	**-**	**-**	**84.452**

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Exhibit P-40, Budget Line Item Justification: PB 2022 Air Force	Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 3022F: Procurement, Space Force / BA 01: Space Procurement, SF / BSA 10: Space Programs	**P-1 Line Item Number / Title:** GPSSPC / Global Positioning (Space)

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

Line Item MDAP/MAIS Code: 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)*	-	0.000	2.256	2.274	-	2.274	-	-	-	-	-	-
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	-	0.000	2.256	2.274	-	2.274	-	-	-	-	-	-
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**-**	**0.000**	**2.256**	**2.274**	**-**	**2.274**	**-**	**-**	**-**	**-**	**-**	**-**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Flyaway Unit Cost *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-

Description:

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

KEY DATA LOADING INSTALLATION FACILITY (KLIF)/GPS SECURITY DEVICE: The KLIF facilitates the programming of black key (cryptographic) algorithms into the Selective Availability Anti-Spoofing Module (SAASM) to provide accurate positioning solutions for GPS users using secure equipment. Similar work for the Military Global Positioning System User Equipment (MGUE) is in the planning phase.

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, to increase 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 existing capabilities.

Funding for this exhibit is contained in 1203164SF.

Justification:

KEY DATA LOADING INSTALLATION FACILITY (KLIF)/GPS SECURITY DEVICE: FY 2022 funding provides for the programming of black key (cryptographic) algorithms into the SAASM, providing an accurate positioning solution for GPS users using secure equipment. Funding will procure support for Key Data Processors (KDP), ensuring uninterrupted support to SAASM vendors. SAASM vendors are required to use government-provided KDP as part of the security architecture of GPS User Equipment.

FY 2020 and Prior Years funding for this exhibit is contained in PE 1203164F. Beginning in FY 2021, funding is transferred to PE 1203164SF.

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Exhibit P-40, Budget Line Item Justification: PB 2022 Air Force	Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 3022F: Procurement, Space Force / BA 01: Space Procurement, SF / BSA 10: Space Programs	**P-1 Line Item Number / Title:** HRTG00 / HERITAGE TRANSITION

ID Code (A=Service Ready, B=Not Service Ready): B	Program Elements for Code B Items: 1203605SF	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)*	-	0.000	0.000	13.529	-	13.529	-	-	-	-	-	-
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	-	0.000	0.000	13.529	-	13.529	-	-	-	-	-	-
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**-**	**0.000**	**0.000**	**13.529**	**-**	**13.529**	**-**	**-**	**-**	**-**	**-**	**-**
(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:

Command and Control System-Consolidated (CCS-C) is an Acquisition Category II program providing command and control (C2) capability for Milstar, Defense Satellite Communications Systems (DSCS), Advanced Extremely High Frequency (AEHF) and Wideband Global SATCOM (WGS) Military Satellite Communications (MILSATCOM) missions. CCS-C is operated by the United States Space Force (USSF) Delta 8 under USSF Space Operations Command (SpOC). CCS-C also provides USSF Satellite Operations Centers (SOCs) and training facilities the capability to support launch, early orbit operations, state-of-health monitoring, anomaly resolution, and system training. In 2018, Air Force Space Command mandated that all satellite programs will use Enterprise Ground Services (EGS) as the tactical satellite C2 service to support spacecraft operations. This Program, Heritage Transition (HRTG), transitions CCS-C to EGS by procuring software modifications to existing services and mission unique capabilities required to support Satellite Control Network (SCN) based SATCOM C2 systems in a modernized, cloud-enabled, common ground architecture. HRTG provides adaptive, and robust SATCOM C2 by modernizing the system to a more agile architecture and providing more integrated cyber defense, while providing SATCOM mission data on a common infrastructure using common messaging schemas enabling increased situational awareness for space warfighters. HRTG provides the software modifications required to ensure the operational CCS-C system is not obsolete when the USSF completes transition to the mandatory use of EGS. There is no increase in performance envelope associated with this effort. These mission-specific efforts will be used to migrate the CCS-C into EGS, and will depend on the EGS Program Element 1206770SF funded efforts to provide the foundational EGS cyber-secure platform and applications enabling HRTG capability migration.

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, to increase 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 existing capabilities.

Funding for this exhibit is contained in PE 1203605SF.

Exhibit P-40, Budget Line Item Justification: PB 2022 Air Force	Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 3022F: Procurement, Space Force / BA 01: Space Procurement, SF / BSA 10: Space Programs	**P-1 Line Item Number / Title:** HRTG00 / HERITAGE TRANSITION

ID Code (A=Service Ready, B=Not Service Ready): B	Program Elements for Code B Items: 1203605SF	Other Related Program Elements: N/A

Line Item MDAP/MAIS Code: N/A

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-3a	1 / Heritage Transition (Capability Improvement)		B		- / -	- / 0.000	- / 0.000	- / 13.529	- / 0.000	- / 13.529
P-40	**Total Gross/Weapon System Cost**				**- / -**	**- / 0.000**	**- / 0.000**	**- / 13.529**	**- / -**	**- / 13.529**

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

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

Justification:
This program, P-3A Mod HTRG1, Heritage Transition, is a new start.

Transitioning CCS-C to a modern architecture will provide 27 satellites in 4 constellations into the Common Operating Picture (COP) for space warfighters. This COP enables Battlespace Awareness across the space domain by monitoring space assets for Indications & Warnings (I&W) of ongoing or impending adversary attack. Transitioning CCS-C to EGS will also improve response to threats via agility of capability delivery through modernized architectures, increased cyber resiliency with integrated cyber defense systems, and reduced operator training through shared and common interfaces and underlying operations principles. These constellations provide worldwide flexible, high data rate and long haul communications for Marines, Soldiers, Sailors, Airmen, the White House Communication Agency, the US State Department, international partners, and other special users. By transitioning CCS-C to EGS this effort provides a significant benefit to DSCS III, Milstar, WGS, and AEHF by improving threat responsiveness, system defense and battlespace awareness for the Nation's warfighters through procurement and operation of the satellite constellations and the associated control systems.

In FY 2022, funds will be used to initiate the decomposition of current CCS-C components into service-based applications, identify supporting efforts required to modify CCS-C mission unique capabilities, and begin replacing some components with EGS provided services. CCS-C components include, but are not limited to, support for spacecraft dynamics, simulation, mission scheduling, data libraries and data analytics. Mission unique components include, but are not limited to, mission specific automation, command processing, telemetry processing and orchestration. HRTG will implement system resiliency and situational awareness necessary to operate in the contested domain. Activities may include, but are not limited to, program office support, studies, technical analysis, prototyping, non-recurring engineering, installation, technical documentation, security, quality assurance, etc.

Exhibit P-3a, Individual Modification: PB 2022 Air Force		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 3022F / 01 / 10	**P-1 Line Item Number / Title:** HRTG00 / HERITAGE TRANSITION	**Modification Number / Title:** 1 / Heritage Transition
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)*	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	-	0.000	0.000	13.529	0.000	13.529
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	-	0.000	0.000	13.529	0.000	13.529
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**-**	**0.000**	**0.000**	**13.529**	**0.000**	**13.529**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)						
Initial Spares *($ in Millions)*	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Millions)*	-	-	-	-	-	-

Description:

This program, P-3A Mod HTRG1, Heritage Transition, is a new start.
The Command and Control System - Consolidated (CCS-C) provides Satellite Control Network (SCN) based Command and Control (C2) for the Military SATCOM (MILSATCOM) constellations including MILSTAR, AEHF, WGS, and DSCS. Enterprise Ground Services (EGS) is a cloud enabled, service based, common ground architecture providing a foundation for satellite C2 programs to operate in. An additional benefit of using a common ground architecture for all satellite C2 functions is improved access to data for a Common Operating Picture (COP) and increasing space domain awareness.

Transitioning CCS-C to a modern architecture will provide 27 satellites from four constellations into this COP for space warfighters, improve agility of capability delivery through modernized architectures, increase cyber resiliency via integrated cyber defense systems, and reduce operator training by leveraging shared and common interfaces and underlying operations principles. FY 2022 funds will be used to decompose current CCS-C components into service-based applications and begin replacing some components with EGS provided services. Other modifications may include required procurement, non-recurring engineering, installation, configuration management, security, quality assurance and technical documentation. Future Years Defense Program (FYDP) funds will complete this transition and conduct operations transition activities.

Milestone/Development Status

This effort is a new start operational modification to the CCS-C program that is currently in operations and sustainment. The modification leverages a study completed in FY 2021 with operations and sustainment funding to inform the fastest, most cost-effective way to migrate MILSATCOM C2 to the EGS environment.

Exhibit P-3a, Individual Modification: PB 2022 Air Force		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 3022F / 01 / 10	**P-1 Line Item Number / Title:** HRTG00 / HERITAGE TRANSITION	**Modification Number / Title:** 1 / Heritage Transition
ID Code (A=Service Ready, B=Not Service Ready) : B	**MDAP/MAIS Code:**	
Models of Systems Affected: CCS-C	**Modification Type:** Capability Improvement	**Related RDT&E PEs:**

Financial Plan	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*
Procurement						
Modification Item 1 of 1: CCS-C						
B Kits						
Recurring						
CCS-C:EQUIPMENT Group B (Active)	- / -	- / -	- / -	1 / 9.667	- / -	1 / 9.667
Subtotal: Recurring	- / -	- / -	- / -	- / *9.667*	- / -	- / *9.667*
Subtotal: CCS-C	- / -	- / -	- / -	- / *9.667*	- / -	- / *9.667*
Subtotal: Procurement, All Modification Items	- / -	- / -	- / -	- / *9.667*	- / -	- / *9.667*
Support *(All Modification Items)*						
GROUP B: TOTAL NONRECURRING	- / -	- / -	- / -	- / 1.934	- / -	- / 1.934
FFRDC	- / -	- / -	- / -	- / 0.750	- / -	- / 0.750
A&AS	- / -	- / -	- / -	- / 1.149	- / -	- / 1.149
OTHER GOVT	- / -	- / -	- / -	- / 0.029	- / -	- / 0.029
Subtotal: Support	- / -	- / -	- / -	- / *3.862*	- / -	- / *3.862*
Installation						
Subtotal: Installation	- / -	- / -	- / -	- / -	- / -	- / -
Total						
Total Cost (Procurement + Support + Installation)	**-**	**0.000**	**0.000**	**13.529**	**0.000**	**13.529**

Exhibit P-3a, Individual Modification: PB 2022 Air Force		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 3022F / 01 / 10	**P-1 Line Item Number / Title:** HRTG00 / HERITAGE TRANSITION	**Modification Number / Title:** 1 / Heritage Transition
ID Code (A=Service Ready, B=Not Service Ready) : B		**MDAP/MAIS Code:**
Modification Item 1 of 1: CCS-C		

Manufacturer Information

Manufacturer Name: TBD	Manufacturer Location: Colorado Springs, CO
Administrative Leadtime *(in Months)*: 1	Production Leadtime *(in Months)*: 50

Dates	FY 2020	FY 2021	FY 2022
Contract Dates			Jul 2022
Delivery Dates			Sep 2026

Installation Information

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

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Exhibit P-40, Budget Line Item Justification: PB 2022 Air Force	Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 3022F: Procurement, Space Force / BA 01: Space Procurement, SF / BSA 10: 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)*	-	0.000	35.495	26.245	-	26.245	-	-	-	-	-	-
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	-	0.000	35.495	26.245	-	26.245	-	-	-	-	-	-
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**-**	**0.000**	**35.495**	**26.245**	**-**	**26.245**	**-**	**-**	**-**	**-**	**-**	**-**
(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 CNSSP No. 12 - Cybersecurity Policy of Space Systems Used to Support National Security Missions. 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 3022 , Procurement, Space Forces, from Appropriation 3021, Procurement, Air Force, due to the creation of a new Appropriation for Space Force.

Exhibit P-40, Budget Line Item Justification: PB 2022 Air Force	Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 3022F: Procurement, Space Force / BA 01: Space Procurement, SF / BSA 10: Space Programs	**P-1 Line Item Number / Title:** MC0MSE / Spaceborne Equip (Comsec)

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

Line Item MDAP/MAIS Code: N/A

Exhibits Schedule					Prior Years	FY 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	Spaceborne Equip (Comsec)	P-5a	A		- / -	- / 0.000	- / 35.495	- / 26.245	- / -	- / 26.245
P-40	**Total Gross/Weapon System Cost**				**- / -**	**- / 0.000**	**- / 35.495**	**- / 26.245**	**- / -**	**- / 26.245**

*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:

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: FY22 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: FY22 funding provides Telemetry, Tracking, and Command (TT&C) and mission data cryptographic products to operate in the space environment. AVE procurement of reduced size, weight, and power space qualified satellite cybersecurity COMSEC products supports development, integration, launch and operations in DOD National Security Space System's LargeSat, SmallSat, CubeSat, and hosted payload applications.

c. Ground Operating Equipment (GOE) Products: FY22 funding provides cryptographic products for ground nodes which link to space satellite National Security Space System satellite platforms. GOE provides the procurement of ground equipment with corresponding space algorithms required to communicate with DOD satellite systems. Procurement of Telemetry, Tracking, and Command (TT&C), Mission Data and Satellite Communication (SATCOM) cybersecurity ground application COMSEC products enable secure command and control and secure data transmission protecting DOD space systems' capabilities (Position, Navigation, Timing, Early Warning, SATCOM, Remote Sensing, and Intelligence, Surveillance and Reconnaissance)

2. Space Modular Common Cryptography (SMCC): Reduces space programs development and life cycle 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 FY22 for Air Force, Space Force, DOD, and Intelligence Community Space Programs. FY22 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-5, Cost Analysis: PB 2022 Air Force		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 3022F / 01 / 10	**P-1 Line Item Number / Title:** MC0MSE / Spaceborne Equip (Comsec)	**Item Number / Title [DODIC]:** Spaceborne Equip (Comsec)
ID Code (A=Service Ready, B=Not Service Ready) : A		**MDAP/MAIS Code:**

Resource Summary	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	-	0.000	35.495	26.245	-	26.245
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	-	0.000	35.495	26.245	-	26.245
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**-**	**0.000**	**35.495**	**26.245**	**-**	**26.245**
(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 - 1. Space Communications Security (COMSEC) (PE 1203140F) Cost																		
Recurring Cost																		
a. Logistics	-	-	-	-	-	0.000	1.974	4	7.897	1.396	3	4.189	-	-	-	1.396	3	4.189
b. AVE	-	-	-	-	-	0.000	0.068	22	1.500	-	-	-	-	-	-	-	-	-
c. GOE(†)	-	-	-	-	-	0.000	0.054	107	5.727	0.062	125	7.715	-	-	-	0.062	125	7.715
Subtotal: Recurring Cost	-	-	-	-	-	*0.000*	-	-	*15.124*	-	-	*11.904*	-	-	-	-	-	*11.904*
Subtotal: Hardware - 1. Space Communications Security (COMSEC) (PE 1203140F) Cost	**-**	**-**	**-**	**-**	**-**	***0.000***	**-**	**-**	***15.124***	**-**	**-**	***11.904***	**-**	**-**	**-**	**-**	**-**	***11.904***
Hardware - 2. Space Modular Common Crypto (SMCC) (PE 1203140F) Cost																		
Recurring Cost																		
SMCC(†)	-	-	-	-	-	-	1.698	12	20.371	2.049	7	14.341	-	-	-	2.049	7	14.341
Subtotal: Recurring Cost	-	-	-	-	-	-	-	-	*20.371*	-	-	*14.341*	-	-	-	-	-	*14.341*
Subtotal: Hardware - 2. Space Modular Common Crypto (SMCC) (PE 1203140F) Cost	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	***20.371***	**-**	**-**	***14.341***	**-**	**-**	**-**	**-**	**-**	***14.341***
Gross/Weapon System Cost	**-**	**-**	**-**	**-**	**-**	**0.000**	**-**	**-**	**35.495**	**-**	**-**	**26.245**	**-**	**-**	**-**	**-**	**-**	**26.245**

(†) 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: 3022F / 01 / 10	P-1 Line Item Number / Title: MC0MSE / Spaceborne Equip (Comsec)	Item Number / Title [DODIC]: Spaceborne Equip (Comsec)

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
c. GOE		2021	MULTIPLE / MULTIPLE	Various	AFMC	Nov 2020	Feb 2022	107	0.054	Y		
c. GOE		2022	MULTIPLE / MULTIPLE	Various	AFMC	Feb 2022	May 2023	125	0.062	Y		
SMCC		2021	MULTIPLE / MULTIPLE	Various	AFMC/ESC	Apr 2021	Nov 2022	12	1.698	Y		
SMCC		2022	MULTIPLE / MULTIPLE	Various	AFMC/ESC	Nov 2021	Jun 2023	7	2.049	Y		

Exhibit P-40, Budget Line Item Justification: PB 2022 Air Force	Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 3022F: Procurement, Space Force / BA 01: Space Procurement, SF / BSA 10: 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: 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)*	-	0.000	15.795	24.333	-	24.333	-	-	-	-	-	-
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	-	0.000	15.795	24.333	-	24.333	-	-	-	-	-	-
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**-**	**0.000**	**15.795**	**24.333**	**-**	**24.333**	**-**	**-**	**-**	**-**	**-**	**-**
(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:

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, to increase 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 existing capabilities.

SMC is procuring and fielding Protected Tactical Waveform (PTW) capable modems to meet the Ground Multiband Terminal (GMT) and other Tactical SATCOM 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). The A3M modem integrates into the GMT and other Tactical SATCOM terminals in operation using industry standard interfaces and is operator configurable to the different antenna sizes currently in operation.

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 terminal modification kits, including cable sets to install the modem into the transit cases; a new Commercial Off-The-Shelf (COTS) Data Collection Unit (DCU) for the GMT to support A3M data throughput; and GMT modification labor to remove and process obsolete hardware, repair and label GMT modified cases, and install A3M. Also required is shipping of A3M 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.

GLOBAL BROADCAST SERVICE (GBS): This AF-led joint program implements a worldwide high-capacity satellite broadcast information system to provide a continuous, one-way, high-speed, high-volume flow of classified and unclassified intelligence products (full motion video, imagery, data) to garrisoned, deployed or moving forces. GBS Receive Suites provide lower-echelon AF users with efficient high-data-

Exhibit P-40, Budget Line Item Justification: PB 2022 Air Force		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 3022F: Procurement, Space Force / BA 01: Space Procurement, SF / BSA 10: 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: N/A		

rates via satellite-hosted GBS packages. NSA, via the Committee on National Security Systems (CNSS) Policy 12 and CNSS instruction 1200, requires U.S. Government agencies to employ Transmission Security (TRANSEC) systems to protect information transmitted/received by National Security Space (NSS) systems. Additionally, the Chief Space Operations (CSO) Satellite Communications (SATCOM) Vision mandates a SATCOM Enterprise that can operate through a Contested, Degraded and Operationally-Limited (CDO) environment. Anti-Jam guarantees that GBS meets this vision. Full procurement and fielding of the protected modems will begin in FY 2023.

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: 3022F: Procurement, Space Force / BA 01: Space Procurement, SF / BSA 10: 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: N/A

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		- / -	- / -	- / 11.277	- / 10.406	- / -	- / 10.406
P-5	GBS		A		- / -	- / -	- / -	- / 0.494	- / -	- / 0.494
P-5	PTW Modems		A		- / -	- / -	- / 4.518	- / 13.433	- / -	- / 13.433
P-40	**Total Gross/Weapon System Cost**				**- / -**	**- / 0.000**	**- / 15.795**	**- / 24.333**	**- / -**	**- / 24.333**

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

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

Justification:
This program, GBS P-5, is a new start.

AIR FORCE WIDEBAND ENTERPRISE TERMINALS (AFWET) TERMINAL MODERNIZATION: AFWET terminals from the Satellite Communications (SATCOM) backbone of the DoD Information Network (DoDIN)), operating over Wideband Global SATCOM (WGS), Defense Satellite Communications System, commercial and Allied satellites. These Enterprise terminals support the command and control requirements of Combatant Commanders worldwide and the communication requirements of the President, Secretary of Defense, Department of State (DoS), US strategic and tactical forces, and the North Atlantic Treaty Organization. The Air Force is responsible for terminal equipment at Air Force operated and maintained Enterprise ground terminal locations.

In FY 2022, funding will extend the life of the system, modernize operational suitability, safety and effectiveness, and maintain high interoperability with other DoD, Army, Navy, and Air Force strategic and tactical terminals.

For 8 of 31 new terminals yet to be installed and commissioned; AFWET Terminal Modernization includes: Terminal, installation, engineering, integration and site preparation, radomes, initial spares and acceptance testing. Installation, integration and site preparation costs change substantially based on location.

For 23 of 31 installed and already commissioned new terminals; AFWET Maintenance Upgrades and Sustainment includes: Facility Infrastructure Monitoring Systems (FIMS), power and communication infrastructure, Interconnect Facility (ICF) installations which provide incidental increases in capability, allowing for full utilization of WGS capabilities, compliance with directives on the usage of Internet Protocol, adherence to Unified Capabilities Requirements, compliance with Defense Information Systems Agency (DISA) and National Security Agency directives and more efficient and effective usage of satellite resources for jam-resistant and anti-scintillation wideband links.

AFWET Product Support includes: Product Support Services (PSS) skillsets required for specialized SATCOM fielding and training supporting Terminal Modernization.
AFWET Other Support includes: Advisory and Assistance Services (A&AS), system engineering, and other related activities supporting successful program execution.

Additionally, FY 2022 funding will allow the program to rapidly respond to implement system resiliency and situational awareness necessary to operate in the contested space domain. Activities may include, but are not limited to program office support, studies, technical analysis, etc.

The FY 2022 AFWET funding request was reduced by 0.973 million to account for the availability of prior year execution balances.

PROTECTED TACTICAL WAVEFORM (PTW), AIR FORCE - ARMY ANTI-JAM MODEM (A3M):
FY 2022 effort includes preparation for fielding of Protective Tactical Waveforms (PTW) capable modems, depot labor at Tobyhanna Army Depot and purchase of 105 terminal modification kits for installation into multiple types of tactical terminals.

Exhibit P-40, Budget Line Item Justification: PB 2022 Air Force		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 3022F: Procurement, Space Force / BA 01: Space Procurement, SF / BSA 10: 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: N/A		

Without the modification kits, the new A3M modem cannot be installed. The A3M modem is mounted in a transit case and FY 2022 funding will purchase the cables to connect to the terminal. FY 2022 will also fund a new Data Control Unit (DCU) to utilize the higher A3M data rates.

A3M A&AS includes: systems engineering support to the integration and testing of the Key Loading and Initialization Facility (KLIF); and other related activities supporting terminal modification kits, installation and fielding, and successful program execution.

Additionally, FY 2022 funding will allow the program to rapidly respond to implement system resiliency and situational awareness necessary to operate in the contested space domain. Activities may include, but are not limited to program office support, studies, technical analysis, etc.

GLOBAL BROADCAST SERVICE (GBS): GBS (P-5), is a New Start in FY 2022. FY 2022 funds will pay for production representative modems (Anti-Jam and Transmission Security (TRANSEC) enabled) which will be used for test, training, integration, technical manual updates, and other related activities. The integration of these modems into the GBS Receive Suites will enable military forces to continue receiving high-volume, real time intelligence products in contested environments by ensuring they meet the National Security Agency (NSA) and Operational Requirement Document (ORD) requirements for Transmission Security (TRANSEC). Full procurement and fielding of the protected modems will begin in FY 2023.

Additionally, FY 2022 funding will allow the program to rapidly respond to implement system resiliency and situational awareness necessary to operate in the contested space domain. Activities may include, but are not limited to program office support, studies, technical analysis, etc.

Exhibit P-5, Cost Analysis: PB 2022 Air Force		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 3022F / 01 / 10	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)*	-	-	11.277	10.406	-	10.406
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	-	-	11.277	10.406	-	10.406
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**-**	**-**	**11.277**	**10.406**	**-**	**10.406**
(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	-	-	-	-	-	-	-	-	3.768	-	-	5.108	-	-	-	-	-	5.108
Maintenance Upgrade/ Sustainment	-	-	-	-	-	-	-	-	4.354	-	-	0.804	-	-	-	-	-	0.804
Product Support	-	-	-	-	-	-	-	-	1.586	-	-	2.025	-	-	-	-	-	2.025
Subtotal: Recurring Cost	-	-	-	-	-	-	-	-	*9.708*	-	-	*7.937*	-	-	-	-	-	*7.937*
Subtotal: Hardware - AFWET Cost	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	***9.708***	**-**	**-**	***7.937***	**-**	**-**	**-**	**-**	**-**	***7.937***
Software - AFWET Cost																		
Recurring Cost																		
Advisory and Assistance Services (A&AS)	-	-	-	-	-	-	-	-	0.736	-	-	0.712	-	-	-	-	-	0.712
Other Support	-	-	-	-	-	-	-	-	0.833	-	-	1.757	-	-	-	-	-	1.757
Subtotal: Recurring Cost	-	-	-	-	-	-	-	-	*1.569*	-	-	*2.469*	-	-	-	-	-	*2.469*
Subtotal: Software - AFWET Cost	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	***1.569***	**-**	**-**	***2.469***	**-**	**-**	**-**	**-**	**-**	***2.469***
Gross/Weapon System Cost	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**11.277**	**-**	**-**	**10.406**	**-**	**-**	**-**	**-**	**-**	**10.406**

Exhibit P-5, Cost Analysis: PB 2022 Air Force		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 3022F / 01 / 10	**P-1 Line Item Number / Title:** MILSAT / MILSATCOM	**Item Number / Title [DODIC]:** GBS
ID Code (A=Service Ready, B=Not Service Ready) : A	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	-	-	-	0.494	-	0.494
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	-	-	-	0.494	-	0.494
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**-**	**-**	**-**	**0.494**	**-**	**0.494**
(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 - GBS Cost																		
Recurring Cost																		
GBS-TRANSEC modem	-	-	-	-	-	-	-	-	-	-	-	0.494	-	-	-	-	-	0.494
Subtotal: Recurring Cost	-	-	-	-	-	-	-	-	-	-	-	*0.494*	-	-	-	-	-	*0.494*
Subtotal: Hardware - GBS Cost	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	***0.494***	**-**	**-**	**-**	**-**	**-**	***0.494***
Gross/Weapon System Cost	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**0.494**	**-**	**-**	**-**	**-**	**-**	**0.494**

Remarks:
FY22: Inflation adjustment -$.006M

Exhibit P-5, Cost Analysis: PB 2022 Air Force		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 3022F / 01 / 10	P-1 Line Item Number / Title: MILSAT / MILSATCOM	Item Number / Title [DODIC]: PTW Modems
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)*	-	-	4.518	13.433	-	13.433
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	-	-	4.518	13.433	-	13.433
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**-**	**-**	**4.518**	**13.433**	**-**	**13.433**
(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 - A3M Cost Cost																		
Recurring Cost																		
Depot Tooling	-	-	-	-	-	-	-	-	1.669	-	-	-	-	-	-	-	-	-
GMT Modification Kit	-	-	-	-	-	-	0.020	60	1.200	0.025	105	2.625	-	-	-	0.025	105	2.625
Modem Purchase (includes Labor & Shipping)	-	-	-	-	-	-	-	-	-	0.050	105	5.250	-	-	-	0.050	105	5.250
Deployment & Training	-	-	-	-	-	-	-	-	-	-	-	0.375	-	-	-	-	-	0.375
Subtotal: Recurring Cost	-	-	-	-	-	-	-	-	*2.869*	-	-	*8.250*	-	-	-	-	-	*8.250*
Subtotal: Hardware - A3M Cost Cost	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	***2.869***	**-**	**-**	***8.250***	**-**	**-**	**-**	**-**	**-**	***8.250***
Support - A3M Cost Cost																		
Advisory and Assistance Services (A&AS)	-	-	-	-	-	-	-	-	1.200	-	-	3.932	-	-	-	-	-	3.932
OTHER SUPPORT	-	-	-	-	-	-	-	-	0.449	-	-	1.251	-	-	-	-	-	1.251
Subtotal: Support - A3M Cost Cost	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	***1.649***	**-**	**-**	***5.183***	**-**	**-**	**-**	**-**	**-**	***5.183***
Gross/Weapon System Cost	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**4.518**	**-**	**-**	**13.433**	**-**	**-**	**-**	**-**	**-**	**13.433**

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Exhibit P-40, Budget Line Item Justification: PB 2022 Air Force	Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 3022F: Procurement, Space Force / BA 01: Space Procurement, SF / BSA 10: Space Programs	**P-1 Line Item Number / Title:** MSSBIR / SBIR High (Space)
ID Code (A=Service Ready, B=Not Service Ready):	**Program Elements for Code B Items:** 0604441F — **Other Related Program Elements:** 1206441F
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)*	-	0.000	145.891	154.526	-	154.526	-	-	-	-	-	-
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	-	0.000	145.891	154.526	-	154.526	-	-	-	-	-	-
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**-**	**0.000**	**145.891**	**154.526**	**-**	**154.526**	**-**	**-**	**-**	**-**	**-**	**-**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Flyaway Unit Cost *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-

Description:

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

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 Air Force Space Command (AFSPC) and United States Strategic Command (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. The GEO-5 satellite launched on 18 May 2021.

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

Exhibit P-40, Budget Line Item Justification: PB 2022 Air Force		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 3022F: Procurement, Space Force / BA 01: Space Procurement, SF / BSA 10: Space Programs	P-1 Line Item Number / Title: MSSBIR / SBIR High (Space)	
ID Code (A=Service Ready, B=Not Service Ready):	Program Elements for Code B Items: 0604441F	Other Related Program Elements: 1206441F
Line Item MDAP/MAIS Code: N/A		

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 EMD contract (RDT&E funded). The HEO-3 and 4 payloads are on-orbit and certified for 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 3,375.640M.
Total HEO 3-4 3020/3021 funds are 1,146.672M.
Total S2E2 3080/3020/3021/3022 funds are 603.220M.

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 Detection (NUDET) reporting across all phases of military operations. The program will deliver 3 SMGTs that will have the modified capability in accordance with the USSPACECOM Survivable/Endurable CONOPS (JROC endorsed 31 Jul 2020) to include SBIRS GEO 5/6 processing and Tracking, Telemetry, and Command (TT&C), and the new protected and wide band satellite communication (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 Global Positioning System (GPS) and Nuclear Detonation (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 Concept of Operations (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 (SETA) 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, to increase 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 existing capabilities.

Funding for this exhibit contained in (PE) 1203915SF

Exhibit P-40, Budget Line Item Justification: PB 2022 Air Force	Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 3022F: Procurement, Space Force / BA 01: Space Procurement, SF / BSA 10: Space Programs	**P-1 Line Item Number / Title:** MSSBIR / SBIR High (Space)

ID Code (A=Service Ready, B=Not Service Ready):	Program Elements for Code B Items: 0604441F	Other Related Program Elements: 1206441F

Line Item MDAP/MAIS Code: N/A

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	GEO 5-6		A		- / -	- / -	- / 99.748	- / 87.592	- / -	- / 87.592
P-5	SBIRS Survivable Endurable Evolution (S2E2)		A		- / -	- / -	- / 32.966	- / 58.855	- / -	- / 58.855
P-3a	1 / SBIRS Mobile System & Fixed Comm Electronics Upgrades (Reliability & Maintainability)		B		- / -	- / 0.000	- / 13.177	- / 8.079	- / 0.000	- / 8.079
P-40	**Total Gross/Weapon System Cost**				**- / -**	**- / 0.000**	**- / 145.891**	**- / 154.526**	**- / -**	**- / 154.526**

*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:

GEO 5-6: Funding for FY 2022 enables completion of on-orbit testing for GEO-5 which launched on 18 May 2021. Additionally, funding for FY 2022 enables GEO-6 storage, launch vehicle integration, launch and early orbit testing, classified enhancement capabilities, and continued program/product support.

Mobile & Fixed Site Communications and Electronics Upgrades: Funding for FY 2022 enables common GEO capable antennas required to provide Survivable GEO downlink capability and reduces Survivable Relay Ground Station (SRGS) sustainment posture risk.

S2E2: Funding for FY 2022 will continue to fund program baseline that will deliver S2E2 through Initial Operating Capability (IOC) and bring SBIRS GEO and GPS NUDET detection into the USSTRATCOM Nuclear Command, Control, and Communication (NC3) endurable mission. The program will deliver 3 SMGTs that will have the modified capability in accordance with the USSPACECOM Survivable/Endurable CONOPS (Joint Requirements Oversight Committee (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 ICS.

Additionally, FY 2022 funding will allow the program to rapidly respond to implement system resiliency and situational awareness necessary to operate in the contested space domain. Activities include, but are not limited to, program office support, studies, technical analysis, etc.

Exhibit P-5, Cost Analysis: PB 2022 Air Force		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 3022F / 01 / 10	P-1 Line Item Number / Title: MSSBIR / SBIR High (Space)	Item Number / Title [DODIC]: GEO 5-6
ID Code (A=Service Ready, B=Not Service Ready) : A	MDAP/MAIS Code:	

Resource Summary	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	-	-	99.748	87.592	-	87.592
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	-	-	99.748	87.592	-	87.592
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**-**	**-**	**99.748**	**87.592**	**-**	**87.592**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)						
Initial Spares *($ in Millions)*	-	0.000	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)*
Space Vehicle - GEO 5-6 Cost																		
Recurring Cost																		
GEO 5-6 Hardware	-	-	-	-	-	-	-	-	1.428	-	-	5.969	-	-	-	-	-	5.969
GEO 5-6 Integration and Assembly	-	-	-	-	-	-	-	-	8.096	-	-	33.825	-	-	-	-	-	33.825
GEO 5-6 Enterprise Systems Engineering & Integration (SE&I)	-	-	-	-	-	-	-	-	1.490	-	-	0.784	-	-	-	-	-	0.784
Technical Mission Analysis	-	-	-	-	-	-	-	-	7.901	-	-	7.959	-	-	-	-	-	7.959
Subtotal: Recurring Cost	-	-	-	-	-	-	-	-	*18.915*	-	-	*48.537*	-	-	-	-	-	*48.537*
Non Recurring Cost																		
GEO 5-6 Launch Vehicle and Range Integration	-	-	-	-	-	-	-	-	14.540	-	-	4.343	-	-	-	-	-	4.343
Subtotal: Non Recurring Cost	-	-	-	-	-	-	-	-	*14.540*	-	-	*4.343*	-	-	-	-	-	*4.343*
Subtotal: Space Vehicle - GEO 5-6 Cost	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	***33.455***	**-**	**-**	***52.880***	**-**	**-**	**-**	**-**	**-**	***52.880***
Checkout and Launch - GEO 5-6 Cost																		
GEO 5-6 Launch Ops & Checkout	-	-	-	-	-	-	-	-	41.386	-	-	28.618	-	-	-	-	-	28.618
Interim Contractor Support (ICS)	-	-	-	-	-	-	-	-	20.735	-	-	-	-	-	-	-	-	-
Subtotal: Checkout and Launch - GEO 5-6 Cost	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	***62.121***	**-**	**-**	***28.618***	**-**	**-**	**-**	**-**	**-**	***28.618***

Exhibit P-5, Cost Analysis: PB 2022 Air Force		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 3022F / 01 / 10	P-1 Line Item Number / Title: MSSBIR / SBIR High (Space)	Item Number / Title [DODIC]: GEO 5-6
ID Code (A=Service Ready, B=Not Service Ready) : A		MDAP/MAIS Code:

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

Cost Elements	Prior Years			FY 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)
Support - GEO 5-6 Cost																		
Other Support	-	-	-	-	-	-	-	-	0.236	-	-	2.468	-	-	-	-	-	2.468
FFRDC	-	-	-	-	-	-	-	-	0.288	-	-	0.984	-	-	-	-	-	0.984
A&AS	-	-	-	-	-	-	-	-	3.648	-	-	2.642	-	-	-	-	-	2.642
Subtotal: Support - GEO 5-6 Cost	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	***4.172***	**-**	**-**	***6.094***	**-**	**-**	**-**	**-**	**-**	***6.094***
Gross/Weapon System Cost	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**99.748**	**-**	**-**	**87.592**	**-**	**-**	**-**	**-**	**-**	**87.592**

Remarks:

GEO 5-6: Funding for FY 2022 enables completion of on-orbit testing for GEO-5 which launched on 18 May 2021. Additionally, funding for FY 2022 enables GEO-6 storage, launch vehicle integration, launch and early orbit testing, classified enhancement capabilities, and continued program/product support.

The incrementally funded amount includes the above Total Space Vehicle Cost (less: SE&I, Launch Vehicle & Range Integration, and Interim Contractor Support) and Launch Ops & Checkout Cost. Total incrementally funded amount of 2,729.420M complies with FY13 NDAA limiting procurement cost to 3,900M.

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

Total GEO 5-6 3020/3021/3022 funds are 3,375,640M.

Exhibit P-5, Cost Analysis: PB 2022 Air Force		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 3022F / 01 / 10	**P-1 Line Item Number / Title:** MSSBIR / SBIR High (Space)	**Item Number / Title [DODIC]:** SBIRS Survivable Endurable Evolution (S2E2)
ID Code (A=Service Ready, B=Not Service Ready) : A		**MDAP/MAIS Code:**

Resource Summary	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	-	-	32.966	58.855	-	58.855
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	-	-	32.966	58.855	-	58.855
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**-**	**-**	**32.966**	**58.855**	**-**	**58.855**
(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 - SBIRS Survivable Endurable Evolution (S2E2) Cost																		
Recurring Cost																		
S2E2 SMGT	-	-	-	-	-	-	-	-	2.308	-	-	3.515	-	-	-	-	-	3.515
Systems Engineering & Integration (SE&I)	-	-	-	-	-	-	-	-	3.960	-	-	11.154	-	-	-	-	-	11.154
Technical Mission Analysis	-	-	-	-	-	-	-	-	0.000	-	-	2.122	-	-	-	-	-	2.122
Subtotal: Recurring Cost	-	-	-	-	-	-	-	-	*6.268*	-	-	*16.791*	-	-	-	-	-	*16.791*
Non Recurring Cost																		
S2E2 SMGT DSP/ GEO Stereo Capability Modification	-	-	-	-	-	-	-	-	14.434	-	-	17.881	-	-	-	-	-	17.881
Subtotal: Non Recurring Cost	-	-	-	-	-	-	-	-	*14.434*	-	-	*17.881*	-	-	-	-	-	*17.881*
Subtotal: Hardware - SBIRS Survivable Endurable Evolution (S2E2) Cost	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	***20.702***	**-**	**-**	***34.672***	**-**	**-**	**-**	**-**	**-**	***34.672***
Software - SBIRS Survivable Endurable Evolution (S2E2) Cost																		
Non Recurring Cost																		
S2E2 Software	-	-	-	-	-	-	-	-	7.430	-	-	16.131	-	-	-	-	-	16.131
Subtotal: Non Recurring Cost	-	-	-	-	-	-	-	-	*7.430*	-	-	*16.131*	-	-	-	-	-	*16.131*

Exhibit P-5, Cost Analysis: PB 2022 Air Force		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 3022F / 01 / 10	**P-1 Line Item Number / Title:** MSSBIR / SBIR High (Space)	**Item Number / Title [DODIC]:** SBIRS Survivable Endurable Evolution (S2E2)
ID Code (A=Service Ready, B=Not Service Ready) : A		**MDAP/MAIS Code:**

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: Software - SBIRS Survivable Endurable Evolution (S2E2) Cost	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	***7.430***	**-**	**-**	***16.131***	**-**	**-**	**-**	**-**	**-**	***16.131***
Support - SBIRS Survivable Endurable Evolution (S2E2) Cost																		
Other Support	-	-	-	-	-	-	-	-	0.376	-	-	2.546	-	-	-	-	-	2.546
FFRDC	-	-	-	-	-	-	-	-	0.000	-	-	2.015	-	-	-	-	-	2.015
A&AS	-	-	-	-	-	-	-	-	4.458	-	-	3.491	-	-	-	-	-	3.491
Subtotal: Support - SBIRS Survivable Endurable Evolution (S2E2) Cost	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	***4.834***	**-**	**-**	***8.052***	**-**	**-**	**-**	**-**	**-**	***8.052***
Gross/Weapon System Cost	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**32.966**	**-**	**-**	**58.855**	**-**	**-**	**-**	**-**	**-**	**58.855**

Remarks:

Space Based Infrared System (SBIRS) Survivable Endurable Evolution (S2E2): SBIRS capable Mobile Ground Stations (MGS) require the interim deliverables over this period as described below.

-FY 2017-2022 - Funds a total 5 SMGTs of which 3 SMGTs will meet the modified capability in accordance with JROC endorsed CONOPS. (31 Jul 2020)

-FY 2017-2022 - includes integration of SBIRS GEO 5/6, and the new protected and wide band SATCOM capable terminals in the program baseline to bring SBIRS GEO and Global Positioning System Nuclear Detection into the USSTRATCOM.

-FY 2017-2022 - 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.

Total S2E2 Funding for FY 2011-2022 $603.220M

Quantity 5

Gross Unit Cost $120.644M

Exhibit P-3a, Individual Modification: PB 2022 Air Force		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 3022F / 01 / 10	**P-1 Line Item Number / Title:** MSSBIR / SBIR High (Space)	**Modification Number / Title:** 1 / SBIRS Mobile System & Fixed Comm Electronics Upgrades

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

Resource Summary	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	-	0.000	13.177	8.079	0.000	8.079
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	-	0.000	13.177	8.079	0.000	8.079
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**-**	**0.000**	**13.177**	**8.079**	**0.000**	**8.079**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)						
Initial Spares *($ in Millions)*	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Millions)*	-	-	-	-	-	-

Description:

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

Milestone/Development Status

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

Milestone/Development Status

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

Exhibit P-3a, Individual Modification: PB 2022 Air Force		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 3022F / 01 / 10	**P-1 Line Item Number / Title:** MSSBIR / SBIR High (Space)	**Modification Number / Title:** 1 / SBIRS Mobile System & Fixed Comm Electronics Upgrades
ID Code (A=Service Ready, B=Not Service Ready) : B	**MDAP/MAIS Code:**	
Models of Systems Affected: SBIRS	**Modification Type:** Reliability & Maintainability	**Related RDT&E PEs:**

Financial Plan	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*
Procurement						
Modification Item 1 of 1: SBIRS Mobile Sys & Fixed Comm Elect Upgrades						
B Kits						
Recurring						
SBIRS Mobile Sys & Fixed Comm Elect Upgrades:EQUIPMENT Group B (Active)	- / -	- / -	1 / 13.038	1 / 7.614	- / -	1 / 7.614
Subtotal: Recurring	- / -	- / -	- / *13.038*	- / *7.614*	- / -	- / *7.614*
Subtotal: SBIRS Mobile Sys & Fixed Comm Elect Upgrades	- / -	- / -	- / *13.038*	- / *7.614*	- / -	- / *7.614*
Subtotal: Procurement, All Modification Items	- / -	- / -	- / *13.038*	- / *7.614*	- / -	- / *7.614*
Support *(All Modification Items)*						
A&AS	- / -	- / -	- / 0.064	- / 0.091	- / -	- / 0.091
FFRDC	- / -	- / -	- / 0.041	- / 0.047	- / -	- / 0.047
OTHER GOVT	- / -	- / -	- / 0.034	- / 0.327	- / -	- / 0.327
Subtotal: Support	- / -	- / -	- / *0.139*	- / *0.465*	- / -	- / *0.465*
Installation						
Modification Item 1 of 1: SBIRS Mobile Sys & Fixed Comm Elect Upgrades	- / -	- / -	1 / 0.000	1 / 0.000	- / -	1 / 0.000
Subtotal: Installation	- / -	- / -	*1 / 0.000*	*1 / 0.000*	- / -	*1 / 0.000*
Total						
Total Cost (Procurement + Support + Installation)	**-**	**0.000**	**13.177**	**8.079**	**0.000**	**8.079**

Exhibit P-3a, Individual Modification: PB 2022 Air Force		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 3022F / 01 / 10	**P-1 Line Item Number / Title:** MSSBIR / SBIR High (Space)	**Modification Number / Title:** 1 / SBIRS Mobile System & Fixed Comm Electronics Upgrades

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

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

Manufacturer Information

Manufacturer Name: Lockheed Martin Space Systems	Manufacturer Location: Colorado Springs, CO
Administrative Leadtime *(in Months)*: 0	Production Leadtime *(in Months)*: 0

Dates	FY 2020	FY 2021	FY 2022
Contract Dates		Jun 2021	Jun 2022
Delivery Dates		Jun 2021	Jun 2022

Installation Information

Method of Implementation: Contractor Facility

Installation Cost	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*
Prior Years	- / -	- / -	- / -	- / -	- / -	- / -
FY 2020	- / -	- / -	- / -	- / -	- / -	- / -
FY 2021	- / -	- / -	1 / 0.000	- / -	- / -	- / -
FY 2022	- / -	- / -	- / -	1 / 0.000	- / -	1 / 0.000
Total	- / -	- / -	1 / 0.000	1 / 0.000	- / -	1 / 0.000

Installation Schedule

	PYS	FY 2020				FY 2021				FY 2022			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
In	0	-	-	-	-	-	1	-	-	-	1	-	-
Out	0	-	-	-	-	-	-	1	-	-	-	1	-

Exhibit P-40, Budget Line Item Justification: PB 2022 Air Force	Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 3022F: Procurement, Space Force / BA 01: Space Procurement, SF / BSA 10: Space Programs	**P-1 Line Item Number / Title:** MSSPAC / Special Space Activities
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)*	-	0.000	78.387	142.188	-	142.188	-	-	-	-	-	-
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	-	0.000	78.387	142.188	-	142.188	-	-	-	-	-	-
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**-**	**0.000**	**78.387**	**142.188**	**-**	**142.188**	**-**	**-**	**-**	**-**	**-**	**-**
(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:

This program is reported in accordance with Title 10, United States Code, Section 119(a)(1) in the Special Access Program Annual Report to Congress.

Justification:

This program is reported in accordance with Title 10, United States Code, Section 119(a)(1) in the Special Access Program Annual Report to Congress.

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Exhibit P-40, Budget Line Item Justification: PB 2022 Air Force	Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 3022F: Procurement, Space Force / BA 01: Space Procurement, SF / BSA 10: Space Programs	**P-1 Line Item Number / Title:** MUOS00 / Mobile User Objective System

ID Code (A=Service Ready, B=Not Service Ready): B	Program Elements for Code B Items: 1203109SF	Other Related Program Elements: 1203605SF
Line Item MDAP/MAIS Code: 345		

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)*	-	0.000	0.000	45.371	-	45.371	-	-	-	-	-	-
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	-	0.000	0.000	45.371	-	45.371	-	-	-	-	-	-
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**-**	**0.000**	**0.000**	**45.371**	**-**	**45.371**	**-**	**-**	**-**	**-**	**-**	**-**
(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 2022, Program Element 1203109N, Satellite Communications (SPACE), Appropriation 1507N Weapons Procurement, Navy; Budget Activity 02; BLI 2433 Fleet Satellite Comm Follow-On efforts were transferred to U.S. Space Force (USSF) Program Element 1203109SF Narrowband Satellite Communications; Appropriation 3022F, Procurement, Space Force; Budget Activity 01; BSA 10; P-1 Line Item MUOS00 Mobile User Objective System (MUOS), due to the transfer of the MUOS program from U.S. Navy to USSF.

The Mobile User Objective System (MUOS) provides a worldwide, multi-service population of mobile and fixed-site terminal users with ultra-high frequency (UHF), narrowband, and beyond line-of-sight satellite communications (SATCOM). MUOS significantly increases performance and capacity in support of critical Combatant Command SATCOM priorities. MUOS is the replacement system for the UHF Follow-on (UFO) system, which is currently beyond its design life. MUOS consists of Space, Ground, and User Entry Segments.

The Space Segment consists of 5 geosynchronous satellites, one of which is an on-orbit spare, and provides both a legacy UHF payload, which is backward compatible with UFO, and a Wideband Code Division Multiple Access (WCDMA) payload, which provides 3G cellular-like capability. The User Entry Segment consists of the MUOS waveform that is ultimately integrated into MUOS-capable terminals. The MUOS legacy capability has been in operational use since 2012, and the WCDMA capability transitioned to Early Combatant Command Use in July 2016.

The cost for MUOS Ground Segment upgrades varies depending on the complexity of software defects being addressed and unique configuration of hardware and software requirements being fielded at each of the 6 MUOS ground sites within each given year. The MUOS Ground Segment upgrades address cybersecurity and lifecycle management issues at each of the 6 MUOS ground sites.

The Ground Segment or System consists of four world-wide Radio Access Facilities (RAFs) (Wahiawa, Hawaii; Northwest Chesapeake, Virginia; Niscemi, Italy; and Geraldton, Australia) and two Satellite Control Facilities (Port Hueneme, California and Schriever Air Force Base (AFB), Colorado). Each RAF includes three 60 ft. antennas, and over 50 equipment racks which house a total of 5,000 major hardware components and 250 software applications across the MUOS Program. The RAF in Hawaii includes a Network Management Facility (NMF). The RAFs in Hawaii and Virginia each include a Switching Facility (SF). All four RAFs and two Satellite Control Facilities are considered Ground Sites.

In addition to providing UHF SATCOM for the Department of Defense (DoD), the Space Force has the overall responsibility to deliver the end-to-end (E2E) MUOS capability to the warfighter. This responsibility involves systems engineering, integration, and test management of all MUOS system of system activities, to include the integration of the MUOS waveform into MUOS-capable terminals and the subsequent terminal certification testing.

Exhibit P-40, Budget Line Item Justification: PB 2022 Air Force		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 3022F: Procurement, Space Force / BA 01: Space Procurement, SF / BSA 10: Space Programs	**P-1 Line Item Number / Title:** MUOS00 / Mobile User Objective System	
ID Code (A=Service Ready, B=Not Service Ready): B	**Program Elements for Code B Items:** 1203109SF	**Other Related Program Elements:** 1203605SF
Line Item MDAP/MAIS Code: 345		

Based on the results of the Multi-Service Operational Test and Evaluation-2 (MOT&E-2) in June 2016, Director, Operational Test & Evaluation (DOT&E) assessed MUOS not operationally effective or suitable. As a result, the program addressed the findings and prepared for MOT&E-2B in FY 2019 and Full Operational Capability (FOC) in FY 2020. MOT&E-2B started in May 2019 and completed in August 2019. Navy declared MUOS Full Operational Capability October 2019.

Beginning in FY 2017, MUOS's focus has been upgrading all four Radio Access Facilities and two Satellite Control Facilities to address ongoing cybersecurity threats, hardware and software obsolescence, and operational deficiency issues.

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, to increase 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 existing capabilities.

Funding for this exhibit contained in PE 1203109SF.

Exhibit P-40, Budget Line Item Justification: PB 2022 Air Force	Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 3022F: Procurement, Space Force / BA 01: Space Procurement, SF / BSA 10: Space Programs	**P-1 Line Item Number / Title:** MUOS00 / Mobile User Objective System

ID Code (A=Service Ready, B=Not Service Ready): B	Program Elements for Code B Items: 1203109SF	Other Related Program Elements: 1203605SF

Line Item MDAP/MAIS Code: 345

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-3a	1 / Mobile User Objective System (Other)		B		- / -	- / 0.000	- / 0.000	- / 45.371	- / 0.000	- / 45.371
P-40	**Total Gross/Weapon System Cost**				**- / -**	**- / 0.000**	**- / 0.000**	**- / 45.371**	**- / -**	**- / 45.371**

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

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

Justification:
This program, P-3A Mod MUOS1, Mobile User Objective System, is a new start.

In FY 2022, Program Element 1203109N, Satellite Communications (SPACE), Appropriation 1507N Weapons Procurement, Navy; Budget Activity 02; BLI 2433 Fleet Satellite Comm Follow-On efforts were transferred to U.S. Space Force (USSF) Program Element 1203109SF Narrowband Satellite Communications; Appropriation 3022F, Procurement, Space Force; Budget Activity 01; BSA 10; P-1 Line Item MUOS00 Mobile User Objective System (MUOS), due to the transfer of the MUOS program from U.S. Navy to USSF.

The FY 2022 funding will address obsolescence and cybersecurity vulnerabilities within the MUOS Ground Segment. In FY 2022, 86% of the hardware (HW) and 81% of the software (SW) will be obsolete, based on current funding levels for FY21. Emerging cybersecurity threats and increasing cybersecurity requirements have resulted in a high number of category I/II cybersecurity vulnerabilities, many of which are directly attributable to obsolescence. Denial of service threats against DoD systems have evolved over the past 10 years and continue to proliferate and evolve.

Ground System updates across the FYDP include hardware and software procurements to correct hardware/software deficiencies. Funding is for 5 Ground System updates for each of the six ground sites in each fiscal year through the FYDP. The Ground System updates address hardware/software defect resolution as well as hardware degradation. The hardware/software defect resolution updates are installed at each ground site as part of the operational end item requirements of MUOS and addresses ground system defects which includes associated engineering, integration, test, and delivery efforts to address cybersecurity vulnerabilities, and corrects issues to ensure readiness levels support the warfighter narrowband SATCOM requirements. To address hardware degradation, obsolete items will be replaced in phases in each fiscal year and can include MUOS Transec Controllers, Anti-Jam Modems, Timing and Frequency Distribution System (GPS based), Earth Terminal Interface Signal Processing (ETISP), Microsoft OS based workstations and servers, DSN Gateway, High Assurance Internet Protocol Encryptors (HAIPE), and back up tape drives/storage arrays.

Exhibit P-3a, Individual Modification: PB 2022 Air Force		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 3022F / 01 / 10	**P-1 Line Item Number / Title:** MUOS00 / Mobile User Objective System	**Modification Number / Title:** 1 / Mobile User Objective System
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)*	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	-	0.000	0.000	45.371	0.000	45.371
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	-	0.000	0.000	45.371	0.000	45.371
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**-**	**0.000**	**0.000**	**45.371**	**0.000**	**45.371**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)						
Initial Spares *($ in Millions)*	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Millions)*	-	-	-	-	-	-

Description:

This program, P-3A Mod MUOS1, Mobile User Objective System, is a new start.
MUOS Ground System Updates are to correct functional and CYBER defects as well as address Hardware/Software (HW/SW) obsolescence.

Funding is for 5 Ground System updates for each of the six ground sites in each fiscal year through the FYDP. The Ground System updates address HW/SW defect resolution as well as HW degradation. The hardware/software is installed at each ground site as part of the operational end item requirements of MUOS and addresses ground system defects, which includes associated engineering, integration, test, and delivery efforts to address cybersecurity vulnerabilities, and corrects issues to ensure readiness levels support the warfighter narrowband SATCOM requirements. To address hardware degradation, obsolete items will be replaced in phases in each fiscal year and can include MUOS Transec Controllers, Anti-Jam Modems, Timing and Frequency Distribution System (GPS based), Earth Terminal Interface Signal Processing (ETISP), Microsoft OS based workstations and servers, DSN Gateway, High Assurance Internet Protocol Encryptors (HAIPE), and back up tape drives/storage arrays.

Additionally, funding is for integration and testing of the necessary HW/SW upgrade options which address system deficiencies.

Milestone/Development Status

Development is on-track.

Exhibit P-3a, Individual Modification: PB 2022 Air Force		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 3022F / 01 / 10	**P-1 Line Item Number / Title:** MUOS00 / Mobile User Objective System	**Modification Number / Title:** 1 / Mobile User Objective System
ID Code (A=Service Ready, B=Not Service Ready) : B	**MDAP/MAIS Code:**	
Models of Systems Affected: None	**Modification Type:** Other	**Related RDT&E PEs:** 1203605SF, 1203109SF

Financial Plan	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*
RDT&E PE #						
1203109SF	- / -	- / -	- / -	- / 116.682	- / -	- / 116.682
Procurement						
Modification Item 1 of 6: Detachment Delta (Schriever AFB) NAVSOC						
A Kits						
Recurring						
Detachment Delta (Schriever AFB) NAVSOC:INSTALL KITS Group A (Active)	- / -	- / -	- / -	5 / 0.831	- / -	5 / 0.831
Subtotal: Recurring	- / -	- / -	- / -	- / *0.831*	- / -	- / *0.831*
Subtotal: Detachment Delta (Schriever AFB) NAVSOC	- / -	- / -	- / -	- / *0.831*	- / -	- / *0.831*
Modification Item 2 of 6: Geraldton Ground Site						
A Kits						
Recurring						
Geraldton Ground Site:INSTALL KITS Group A (Active)	- / -	- / -	- / -	5 / 6.302	- / -	5 / 6.302
Subtotal: Recurring	- / -	- / -	- / -	- / *6.302*	- / -	- / *6.302*
Subtotal: Geraldton Ground Site	- / -	- / -	- / -	- / *6.302*	- / -	- / *6.302*
Modification Item 3 of 6: HQ (Port Hueneme) NAVSOC						
A Kits						
Recurring						
HQ (Port Hueneme) NAVSOC:INSTALL KITS Group A (Active)	- / -	- / -	- / -	5 / 0.934	- / -	5 / 0.934
Subtotal: Recurring	- / -	- / -	- / -	- / *0.934*	- / -	- / *0.934*
Subtotal: HQ (Port Hueneme) NAVSOC	- / -	- / -	- / -	- / *0.934*	- / -	- / *0.934*
Modification Item 4 of 6: Niscemi Ground Site						
A Kits						
Recurring						
Niscemi Ground Site:INSTALL KITS Group A (Active)	- / -	- / -	- / -	5 / 6.352	- / -	5 / 6.352
Subtotal: Recurring	- / -	- / -	- / -	- / *6.352*	- / -	- / *6.352*
Subtotal: Niscemi Ground Site	- / -	- / -	- / -	- / *6.352*	- / -	- / *6.352*
Modification Item 5 of 6: Northwest (VA) Ground Site						
A Kits						

Exhibit P-3a, Individual Modification: PB 2022 Air Force		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 3022F / 01 / 10	**P-1 Line Item Number / Title:** MUOS00 / Mobile User Objective System	**Modification Number / Title:** 1 / Mobile User Objective System
ID Code (A=Service Ready, B=Not Service Ready) : B	**MDAP/MAIS Code:**	
Models of Systems Affected: None	**Modification Type:** Other	**Related RDT&E PEs:** 1203605SF, 1203109SF

Financial Plan	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*
Recurring						
Northwest (VA) Ground Site:INSTALL KITS Group A (Active)	- / -	- / -	- / -	5 / 8.659	- / -	5 / 8.659
Subtotal: Recurring	- / -	- / -	- / -	- / *8.659*	- / -	- / *8.659*
Subtotal: Northwest (VA) Ground Site	- / -	- / -	- / -	- / *8.659*	- / -	- / *8.659*
Modification Item 6 of 6: Wahiawa Ground Site						
A Kits						
Recurring						
Wahiawa Ground Site:INSTALL KITS Group A (Active)	- / -	- / -	- / -	5 / 20.240	- / -	5 / 20.240
Subtotal: Recurring	- / -	- / -	- / -	- / *20.240*	- / -	- / *20.240*
Subtotal: Wahiawa Ground Site	- / -	- / -	- / -	- / *20.240*	- / -	- / *20.240*
Subtotal: Procurement, All Modification Items	- / -	- / -	- / -	- / *43.318*	- / -	- / *43.318*
Installation						
Modification Item 1 of 6: Detachment Delta (Schriever AFB) NAVSOC	- / -	- / -	- / -	5 / 0.248	- / -	5 / 0.248
Modification Item 2 of 6: Geraldton Ground Site	- / -	- / -	- / -	5 / 0.420	- / -	5 / 0.420
Modification Item 3 of 6: HQ (Port Hueneme) NAVSOC	- / -	- / -	- / -	5 / 0.248	- / -	5 / 0.248
Modification Item 4 of 6: Niscemi Ground Site	- / -	- / -	- / -	5 / 0.396	- / -	5 / 0.396
Modification Item 5 of 6: Northwest (VA) Ground Site	- / -	- / -	- / -	5 / 0.267	- / -	5 / 0.267
Modification Item 6 of 6: Wahiawa Ground Site	- / -	- / -	- / -	5 / 0.474	- / -	5 / 0.474
Subtotal: Installation	- / -	- / -	- / -	*30 / 2.053*	- / -	*30 / 2.053*
Total						
Total Cost (Procurement + Support + Installation)	**-**	**0.000**	**0.000**	**45.371**	**0.000**	**45.371**

Exhibit P-3a, Individual Modification: PB 2022 Air Force		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 3022F / 01 / 10	**P-1 Line Item Number / Title:** MUOS00 / Mobile User Objective System	**Modification Number / Title:** 1 / Mobile User Objective System
ID Code (A=Service Ready, B=Not Service Ready) : B		**MDAP/MAIS Code:**

Modification Item 1 of 6: Detachment Delta (Schriever AFB) NAVSOC

Manufacturer Information

Manufacturer Name: General Dynamics	Manufacturer Location: Scottsdale, AZ
Administrative Leadtime *(in Months)*: 1	Production Leadtime *(in Months)*: 2

Dates	FY 2020	FY 2021	FY 2022
Contract Dates			Nov 2021
Delivery Dates			Jan 2022

Installation Information

Method of Implementation: Contract Field Team

Installation Cost	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*
Prior Years	- / -	- / -	- / -	- / -	- / -	- / -
FY 2020	- / -	- / -	- / -	- / -	- / -	- / -
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -
FY 2022	- / -	- / -	- / -	5 / 0.248	- / -	5 / 0.248
Total	- / -	- / -	- / -	5 / 0.248	- / -	5 / 0.248

Installation Schedule

	PYS	FY 2020				FY 2021				FY 2022			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
In	0	-	-	-	-	-	-	-	-	-	2	2	1
Out	0	-	-	-	-	-	-	-	-	-	2	2	1

Exhibit P-3a, Individual Modification: PB 2022 Air Force		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 3022F / 01 / 10	**P-1 Line Item Number / Title:** MUOS00 / Mobile User Objective System	**Modification Number / Title:** 1 / Mobile User Objective System
ID Code (A=Service Ready, B=Not Service Ready) : B		**MDAP/MAIS Code:**

Modification Item 2 of 6: Geraldton Ground Site

Manufacturer Information

Manufacturer Name: General Dynamics	Manufacturer Location: Scottsdale, AZ
Administrative Leadtime *(in Months)*: 1	Production Leadtime *(in Months)*: 2

Dates	FY 2020	FY 2021	FY 2022
Contract Dates			Nov 2021
Delivery Dates			Jan 2022

Installation Information

Method of Implementation: Contract Field Team

Installation Cost	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*
Prior Years	- / -	- / -	- / -	- / -	- / -	- / -
FY 2020	- / -	- / -	- / -	- / -	- / -	- / -
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -
FY 2022	- / -	- / -	- / -	5 / 0.420	- / -	5 / 0.420
Total	- / -	- / -	- / -	5 / 0.420	- / -	5 / 0.420

Installation Schedule

	PYS	FY 2020				FY 2021				FY 2022			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
In	0	-	-	-	-	-	-	-	-	-	2	2	1
Out	0	-	-	-	-	-	-	-	-	-	2	2	1

Exhibit P-3a, Individual Modification: PB 2022 Air Force		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 3022F / 01 / 10	**P-1 Line Item Number / Title:** MUOS00 / Mobile User Objective System	**Modification Number / Title:** 1 / Mobile User Objective System
ID Code (A=Service Ready, B=Not Service Ready) : B		**MDAP/MAIS Code:**

Modification Item 3 of 6: HQ (Port Hueneme) NAVSOC

Manufacturer Information

Manufacturer Name: General Dynamics	Manufacturer Location: Scottsdale, AZ
Administrative Leadtime *(in Months)*: 1	Production Leadtime *(in Months)*: 2

Dates	FY 2020	FY 2021	FY 2022
Contract Dates			Nov 2021
Delivery Dates			Jan 2022

Installation Information

Method of Implementation: Contract Field Team

Installation Cost	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*
Prior Years	- / -	- / -	- / -	- / -	- / -	- / -
FY 2020	- / -	- / -	- / -	- / -	- / -	- / -
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -
FY 2022	- / -	- / -	- / -	5 / 0.248	- / -	5 / 0.248
Total	- / -	- / -	- / -	5 / 0.248	- / -	5 / 0.248

Installation Schedule

	PYS	FY 2020				FY 2021				FY 2022			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
In	0	-	-	-	-	-	-	-	-	-	2	2	1
Out	0	-	-	-	-	-	-	-	-	-	2	2	1

Exhibit P-3a, Individual Modification: PB 2022 Air Force		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 3022F / 01 / 10	**P-1 Line Item Number / Title:** MUOS00 / Mobile User Objective System	**Modification Number / Title:** 1 / Mobile User Objective System
ID Code (A=Service Ready, B=Not Service Ready) : B		**MDAP/MAIS Code:**

Modification Item 4 of 6: Niscemi Ground Site

Manufacturer Information

Manufacturer Name: General Dynamics	Manufacturer Location: Scottsdale, AZ
Administrative Leadtime *(in Months)*: 1	Production Leadtime *(in Months)*: 2

Dates	FY 2020	FY 2021	FY 2022
Contract Dates			Nov 2021
Delivery Dates			Jan 2022

Installation Information

Method of Implementation: Contract Field Team

Installation Cost	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*
Prior Years	- / -	- / -	- / -	- / -	- / -	- / -
FY 2020	- / -	- / -	- / -	- / -	- / -	- / -
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -
FY 2022	- / -	- / -	- / -	5 / 0.396	- / -	5 / 0.396
Total	- / -	- / -	- / -	5 / 0.396	- / -	5 / 0.396

Installation Schedule

	PYS	FY 2020				FY 2021				FY 2022			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
In	0	-	-	-	-	-	-	-	-	-	2	2	1
Out	0	-	-	-	-	-	-	-	-	-	2	2	1

Exhibit P-3a, Individual Modification: PB 2022 Air Force		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 3022F / 01 / 10	**P-1 Line Item Number / Title:** MUOS00 / Mobile User Objective System	**Modification Number / Title:** 1 / Mobile User Objective System
ID Code (A=Service Ready, B=Not Service Ready) : B		**MDAP/MAIS Code:**

Modification Item 5 of 6: Northwest (VA) Ground Site

Manufacturer Information

Manufacturer Name: General Dynamics	Manufacturer Location: Scottsdale, AZ
Administrative Leadtime *(in Months)*: 1	Production Leadtime *(in Months)*: 2

Dates	FY 2020	FY 2021	FY 2022
Contract Dates			Nov 2021
Delivery Dates			Jan 2022

Installation Information

Method of Implementation: Contract Field Team

Installation Cost	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*
Prior Years	- / -	- / -	- / -	- / -	- / -	- / -
FY 2020	- / -	- / -	- / -	- / -	- / -	- / -
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -
FY 2022	- / -	- / -	- / -	5 / 0.267	- / -	5 / 0.267
Total	- / -	- / -	- / -	5 / 0.267	- / -	5 / 0.267

Installation Schedule

	PYS	FY 2020				FY 2021				FY 2022			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
In	0	-	-	-	-	-	-	-	-	-	2	2	1
Out	0	-	-	-	-	-	-	-	-	-	2	2	1

Exhibit P-3a, Individual Modification: PB 2022 Air Force		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 3022F / 01 / 10	**P-1 Line Item Number / Title:** MUOS00 / Mobile User Objective System	**Modification Number / Title:** 1 / Mobile User Objective System
ID Code (A=Service Ready, B=Not Service Ready) : B		**MDAP/MAIS Code:**

Modification Item 6 of 6: Wahiawa Ground Site

Manufacturer Information

Manufacturer Name: General Dynamics	Manufacturer Location: Scottsdale, AZ
Administrative Leadtime *(in Months)*: 1	Production Leadtime *(in Months)*: 2

Dates	FY 2020	FY 2021	FY 2022
Contract Dates			Nov 2021
Delivery Dates			Jan 2022

Installation Information

Method of Implementation: Contract Field Team

Installation Cost	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*
Prior Years	- / -	- / -	- / -	- / -	- / -	- / -
FY 2020	- / -	- / -	- / -	- / -	- / -	- / -
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -
FY 2022	- / -	- / -	- / -	5 / 0.474	- / -	5 / 0.474
Total	- / -	- / -	- / -	5 / 0.474	- / -	5 / 0.474

Installation Schedule

	PYS	FY 2020				FY 2021				FY 2022			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
In	0	-	-	-	-	-	-	-	-	-	2	2	1
Out	0	-	-	-	-	-	-	-	-	-	2	2	1

Exhibit P-40, Budget Line Item Justification: PB 2022 Air Force	Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 3022F: Procurement, Space Force / BA 01: Space Procurement, SF / BSA 10: Space Programs	**P-1 Line Item Number / Title:** NSSL00 / National Security Space Launch

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: 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)*	-	-	3	5	-	5	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	-	0.000	996.371	1,337.347	-	1,337.347	-	-	-	-	-	-
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	-	0.000	996.371	1,337.347	-	1,337.347	-	-	-	-	-	-
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**-**	**0.000**	**996.371**	**1,337.347**	**-**	**1,337.347**	**-**	**-**	**-**	**-**	**-**	**-**
(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)*	-	-	332.124	267.469	-	267.469	-	-	-	-	-	-

Description:

The National Security Space Launch (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 Space 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 Space Force, National Reconnaissance Office (NRO), and the National Aeronautics and Space Administration (NASA) have a coordinated strategy for certification of New Entrants to launch payloads in support of NSS and other USG requirements. The Space 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 Space 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.

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, to increase 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 existing capabilities.

Exhibit P-40, Budget Line Item Justification: PB 2022 Air Force	Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 3022F: Procurement, Space Force / BA 01: Space Procurement, SF / BSA 10: Space Programs	**P-1 Line Item Number / Title:** NSSL00 / National Security Space Launch

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: 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	National Security Space Launch	P-5a, P-21	A		- / -	- / 0.000	3 / 996.371	5 / 1,337.347	- / -	5 / 1,337.347
P-40	**Total Gross/Weapon System Cost**				**- / -**	**- / 0.000**	**3 / 996.371**	**5 / 1,337.347**	**- / -**	**5 / 1,337.347**

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

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

Justification:
FY 2022 NSSL procurement funding will acquire launch services to provide critical space support required to satisfy Department of Defense (DoD) warfighter, national security, and other US Government space lift missions while leverage commercial innovation. Launch services include, but are not limited to, launch vehicle manufacturing, launch operations (tasks such as systems and factory engineering, program management, launch and range activities, and infrastructure), mission success incentives, recurring costs for Orbital Debris Mitigation Standard Practice, secondary payload adapters (i.e. multi-mission manifest adapters) and integration onto NSS or other USG agency procured launch services, launch propellants, independent mission assurance, evaluation and certification of potential New Entrants, early integration activities, studies and analysis, program office support and any other related activities to support mission requirements to rapidly respond to implement system resiliency and situational awareness necessary to operate in the contested space domain.

Launch services will be ordered under the Phase 2 contracts. Launch Service Support (LSS) is part of the Phase 2 contracts and will include NSS readiness, fleet surveillance, fleet mission assurance, and unique NSS infrastructure requirements (vertical integration, classified facilities, etc).

The Space Force is responsible for funding its own missions. Generally, non-Space Force launch services are funded within their respective entities (e.g. NRO, Navy).

The Space Vehicle (SV) Program offices and other partners are responsible for funding mission unique requirements including hardware, integration and testing. Funding for mission unique requirements that span across NSSL and the SV Program Office will be shared between both organizations.

FY 2022 decreased by 16.923M to adjust for inflation and decreased by 40M for higher USSF priorities.

FY 2020 and Prior Years funding for this exhibit is contained in PE1203953F. Beginning in FY 2021, funding is transferred to PE1203953SF.

Exhibit P-5, Cost Analysis: PB 2022 Air Force		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 3022F / 01 / 10	**P-1 Line Item Number / Title:** NSSL00 / National Security Space Launch	**Item Number / Title [DODIC]:** National Security Space Launch
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)*	-	-	3	5	-	5
Gross/Weapon System Cost *($ in Millions)*	-	0.000	996.371	1,337.347	-	1,337.347
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	-	0.000	996.371	1,337.347	-	1,337.347
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**-**	**0.000**	**996.371**	**1,337.347**	**-**	**1,337.347**
(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)*	-	-	332.124	267.469	-	267.469

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(†)	-	-	-	-	-	0.000	162.539	3	487.617	161.513	5	807.567	-	-	-	161.513	5	807.567
Launch Services Support	-	-	-	-	-	0.000	-	-	287.583	-	-	294.199	-	-	-	-	-	294.199
Enterprise Systems Engineering & Integration	-	-	-	-	-	0.000	-	-	73.931	-	-	78.583	-	-	-	-	-	78.583
Mission Assurance	-	-	-	-	-	0.000	-	-	105.402	-	-	112.770	-	-	-	-	-	112.770
Subtotal: Recurring Cost	-	-	-	-	-	*0.000*	-	-	*954.533*	-	-	*1,293.119*	-	-	-	-	-	*1,293.119*
Subtotal: Launch - Launch End Item Cost	**-**	**-**	**-**	**-**	**-**	***0.000***	**-**	**-**	***954.533***	**-**	**-**	***1,293.119***	**-**	**-**	**-**	**-**	**-**	***1,293.119***
Support - Support End Item Cost																		
Other Support	-	-	-	-	-	0.000	-	-	2.680	-	-	2.761	-	-	-	-	-	2.761
A&AS	-	-	-	-	-	0.000	-	-	13.354	-	-	14.047	-	-	-	-	-	14.047
FFRDC	-	-	-	-	-	0.000	-	-	25.804	-	-	27.420	-	-	-	-	-	27.420
Subtotal: Support - Support End Item Cost	**-**	**-**	**-**	**-**	**-**	***0.000***	**-**	**-**	***41.838***	**-**	**-**	***44.228***	**-**	**-**	**-**	**-**	**-**	***44.228***
Gross/Weapon System Cost	**-**	**-**	**-**	**-**	**-**	**0.000**	**332.124**	**3**	**996.371**	**267.469**	**5**	**1,337.347**	**-**	**-**	**-**	**267.469**	**5**	**1,337.347**

Remarks:

Exhibit P-5, Cost Analysis: PB 2022 Air Force		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 3022F / 01 / 10	**P-1 Line Item Number / Title:** NSSL00 / National Security Space Launch	**Item Number / Title [DODIC]:** National Security Space Launch
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, as updated per Addendum 2 of 13 January 2018, specifies a 60/40 Air Force/NRO share ratio for Federally Funded Research and Development Center (FFRDC) Mission Assurance. An updated Interagency Agreement (IA) between the Space and Missile Systems Center, Launch Enterprise, and the National Reconnaissance Office (NRO), dated 1 October 2019 provides a 75/25 cost share agreement for the Phase 2 Launch Service Support.

FY22 Launch Services and Launch Service Support amounts reflect Firm Fixed Price values based on Phase 2 average contract pricing estimate methodology.

FY21 enacted amount includes a reduction of $46.8M due to Phase 2 contract savings

(†) 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: 3022F / 01 / 10	P-1 Line Item Number / Title: NSSL00 / National Security Space Launch	Item Number / Title [DODIC]: National Security Space Launch

Cost Elements	OCO	FY	Contractor and Location	Method/Type or Funding Vehicle	Location of PCO	Award Date	Date of First Delivery	Qty (Each)	Unit Cost ($ M)	Specs Avail Now?	Date Revision Available	RFP Issue Date
Launch Services(†)		2021	SpaceX/ULA / CA/CO	Various	SMC, LA AFB, CA	Mar 2021	Mar 2023	3	162.539	Y		May 2019
Launch Services(†)		2022	SpaceX/ULA / CA/CO	Various	SMC, LA AFB, CA	Jan 2022	Jan 2024	5	161.513	Y		May 2019

(†) 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: 3022F / 01 / 10	**P-1 Line Item Number / Title:** NSSL00 / National Security Space Launch	**Item Number / Title [DODIC]:** National Security Space Launch

Cost Elements (Units in Each)							Fiscal Year 2021												Fiscal Year 2022											BALANCE
										Calendar Year 2021														Calendar Year 2022									
OCO	MFR #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2020	BAL DUE AS OF 1 OCT	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	
Launch Services																														
	1	2021	AF [1]	3	0	3						A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3
	1	2022	AF	5	0	5																A -	-	-	-	-	-	-	-	-	5
							OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	

Exhibit P-21, Production Schedule: PB 2022 Air Force		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 3022F / 01 / 10	**P-1 Line Item Number / Title:** NSSL00 / National Security Space Launch	**Item Number / Title [DODIC]:** National Security Space Launch

Cost Elements (Units in Each)							Fiscal Year 2023												Fiscal Year 2024												BALANCE
							Calendar Year 2023												Calendar Year 2024													
OCO	MFR #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2022	BAL DUE AS OF 1 OCT	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	
Launch Services																															
	1	2021	AF [1]	3	0	3	-	-	-	-	-	3																			0
	1	2022	AF	5	0	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5									0
							OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	

Exhibit P-21, Production Schedule: PB 2022 Air Force		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 3022F / 01 / 10	**P-1 Line Item Number / Title:** NSSL00 / National Security Space Launch	**Item Number / Title [DODIC]:** National Security Space Launch

MFR Ref #	Manufacturer Name - Location	Production Rates (Each / Year)			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	SpaceX/ULA - CA/CO	5	5	5	0	0	0	0	0	4	24	28

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

Footnotes:
(1) Prior Year contracts with undelivered assets have all deliveries occurring before Oct 2019 loaded in the month of first delivery.

Exhibit P-40, Budget Line Item Justification: PB 2022 Air Force	Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 3022F: Procurement, Space Force / BA 01: Space Procurement, SF / BSA 10: Space Programs	**P-1 Line Item Number / Title:** NUDETS / NUDET Detection System
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)*	-	0.000	6.638	6.690	-	6.690	-	-	-	-	-	-
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	-	0.000	6.638	6.690	-	6.690	-	-	-	-	-	-
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**-**	**0.000**	**6.638**	**6.690**	**-**	**6.690**	**-**	**-**	**-**	**-**	**-**	**-**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Flyaway Unit Cost *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-

Description:

The United States Nuclear Detonation (NUDET) Detection System (USNDS) provides a near real-time worldwide, highly survivable/endurable capability to detect, locate, and report any nuclear detonations in the atmosphere of the earth or in near space. The USNDS Operational Requirements Document (ORD), dated 21 Jan 2004, documents the requirements for space-based NUDET detection. Space-based NUDET detection is also mandated by Public Law (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.

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.

Exhibit P-40, Budget Line Item Justification: PB 2022 Air Force		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 3022F: Procurement, Space Force / BA 01: Space Procurement, SF / BSA 10: Space Programs	**P-1 Line Item Number / Title:** NUDETS / NUDET Detection System	
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		

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, to increase 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 existing capabilities.

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

Exhibit P-40, Budget Line Item Justification: PB 2022 Air Force	Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 3022F: Procurement, Space Force / BA 01: Space Procurement, SF / BSA 10: Space Programs	**P-1 Line Item Number / Title:** NUDETS / NUDET Detection System

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

Line Item MDAP/MAIS Code: N/A

Exhibits Schedule					Prior Years	FY 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	NUDET Detection System		A		- / -	- / 0.000	- / 6.638	- / 6.690	- / -	- / 6.690
P-40	**Total Gross/Weapon System Cost**				**- / -**	**- / 0.000**	**- / 6.638**	**- / 6.690**	**- / -**	**- / 6.690**

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

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

Justification:
GROUND NUCLEAR DETONATION DETECTION TERMINALS UPGRADES/SENSOR CHECKOUT ACTIVITIES : FY 2022 funding includes, but is not limited to, tech refresh on NUDET Detection System Analysis Package Ground Station (NAPGS) and Laser Applications (LAZAP), and Oracle Database and File Servers in support of Sandia Data Acquisition & Display Systems (SDADS). These upgrades will result in improved reliability and ensure the continued support of the ITW/AA and NFM to the National Command Authorities. USNDS is classified as a Nuclear Command, Control, and Communications (NC3) system. Rapid response to implement system resiliency and situational awareness necessary to operate in the contested space domain. Activities may include, but are not limited to program office support, studies, technical analysis, etc.

Exhibit P-5, Cost Analysis: PB 2022 Air Force		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 3022F / 01 / 10	**P-1 Line Item Number / Title:** NUDETS / NUDET Detection System	**Item Number / Title [DODIC]:** NUDET Detection System
ID Code (A=Service Ready, B=Not Service Ready) : A		**MDAP/MAIS Code:**

Resource Summary	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	-	0.000	6.638	6.690	-	6.690
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	-	0.000	6.638	6.690	-	6.690
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**-**	**0.000**	**6.638**	**6.690**	**-**	**6.690**
(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 - NUDET Detection System Cost																		
Recurring Cost																		
USNDS Ops Strings and Modem Platform Delivery	-	-	-	-	-	0.000	-	-	6.638	-	-	6.690	-	-	-	-	-	6.690
Subtotal: Recurring Cost	-	-	-	-	-	*0.000*	-	-	*6.638*	-	-	*6.690*	-	-	-	-	-	*6.690*
Subtotal: Hardware - NUDET Detection System Cost	**-**	**-**	**-**	**-**	**-**	***0.000***	**-**	**-**	***6.638***	**-**	**-**	***6.690***	**-**	**-**	**-**	**-**	**-**	***6.690***
Gross/Weapon System Cost	**-**	**-**	**-**	**-**	**-**	**0.000**	**-**	**-**	**6.638**	**-**	**-**	**6.690**	**-**	**-**	**-**	**-**	**-**	**6.690**

Exhibit P-40, Budget Line Item Justification: PB 2022 Air Force	Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 3022F: Procurement, Space Force / BA 01: Space Procurement, SF / BSA 10: Space Programs	**P-1 Line Item Number / Title:** PTES00 / PTES HUB

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)*	-	0.000	0.000	7.406	-	7.406	-	-	-	-	-	-
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	-	0.000	0.000	7.406	-	7.406	-	-	-	-	-	-
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**-**	**0.000**	**0.000**	**7.406**	**-**	**7.406**	**-**	**-**	**-**	**-**	**-**	**-**
(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 global threat of electronic warfare attacks against space systems will expand in the coming years in both number and types of weapons. Threat development will very likely focus on jamming capabilities against dedicated military satellite communications (MILSATCOM). To address this critical threat, the Space Force is developing the Protected Tactical Enterprise Service (PTES) ground system to provide worldwide, anti-jam, Low Probability of Intercept (LPI) communications for tactical warfighters. PTES will utilize the Protected Tactical Waveform (PTW) to provide anti-jam communications via military and commercial satellite systems for tactical users in all Services. Initially, PTES will utilize the Wideband Global SATCOM (WGS) system and may be expanded later to include commercial satellites and the Protected Tactical SATCOM (PTS) system.

The PTES program is developing a Mission Management System (MMS), a Key Management System (KMS) and hub system to enable PTW via transponded WGS satellites, with future extension to commercial SATCOM. Production-representative PTW modems for user terminals were developed by the Protected Tactical Service Field Demonstration (PTSFD) and separately acquired by each Service and by international partners.

To meet the warfighter requirements for protected tactical MILSATCOM and identified capability gaps, Procurement funding will be used to acquire the Joint Hubs necessary to operate the system at Full Operational Capability (FOC). PTES requires two Joint Hubs, at separate locations, to operate at Initial Operational Capability (IOC). Each Joint Hub requires site surveys, equipment purchases (modems, End Cryptographic Unit (ECU), etc.), equipment installation and equipment testing.

The PTES rapid prototype addresses an urgent operational need in the Pacific region by achieving IOC in 2024. IOC provides ground elements for PTW over WGS and consists of PTES installation at two WGS Gateway sites utilizing one WGS satellite. The Navy Wideband Anti-Jam Modem System (WAMS), the Air Force-Army Anti-Jam Modem (A3M), and other stakeholders rely on PTES to provide PTW ground infrastructure. The Space Force is utilizing FY 2016 National Defense Authorization Act, Section 804, Middle Tier of Acquisition for Rapid Prototyping authority to deliver a PTES Operational Demonstration meeting IOC threshold capabilities in FY 2022. At Full Operational Capability (FOC) PTES will provide worldwide PTW operations using up to all WGS satellites.

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, to increase 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 existing capabilities.

Exhibit P-40, Budget Line Item Justification: PB 2022 Air Force		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 3022F: Procurement, Space Force / BA 01: Space Procurement, SF / BSA 10: Space Programs	**P-1 Line Item Number / Title:** PTES00 / PTES HUB	
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		

Funding for this exhibit is contained in PE 1206760SF. This program has associated Research Development Test and Evaluation funding in PE 1206760SF.

Exhibit P-40, Budget Line Item Justification: PB 2022 Air Force	Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 3022F: Procurement, Space Force / BA 01: Space Procurement, SF / BSA 10: Space Programs	**P-1 Line Item Number / Title:** PTES00 / PTES HUB

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

Line Item MDAP/MAIS Code: N/A

Exhibits Schedule					Prior Years	FY 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-40a	PTES HUB				- / -	- / 0.000	- / 0.000	- / 7.406	- / -	- / 7.406
P-40	**Total Gross/Weapon System Cost**				**- / -**	**- / 0.000**	**- / 0.000**	**- / 7.406**	**- / -**	**- / 7.406**

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

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

Justification:
This program, Category PTES HUB Item PTES Ground, is a new start.

In FY 2022, PTES HUB is a New Start.

In FY 2022, PTES will be installing two Joint Hubs, one at each of two locations, with each hub consisting of three racks of equipment to include modems and End Cryptographic Unit (ECU). The ECUs are procured with PTES procurement funds. This effort will include site surveys, the installment itself, as well as the equipment testing. Further, the effort will include associated contracted support and Other Government Costs. Additionally, FY 2022 funding will allow the program to rapidly implement system resiliency and situational awareness necessary to operate in the contested space domain. Activities include, but are not limited to, program office support, studies, technical analysis, etc.

Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2022 Air Force		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 3022F / 01 / 10	**P-1 Line Item Number / Title:** PTES00 / PTES HUB	**Aggregated Items Title:** PTES HUB

Item Number / Title [DODIC]	ID CD	MDAP/ MAIS Code	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)
PTES HUB																				
PTES Ground	A		-	-	-	-	-	0.000	-	-	0.000	-	-	7.406	-	-	-	-	-	7.406
Subtotal: PTES HUB			**-**	**-**	**-**	**-**	**-**	***0.000***	**-**	**-**	***0.000***	**-**	**-**	***7.406***	**-**	**-**	**-**	**-**	**-**	***7.406***
Total			**-**	**-**	**-**	**-**	**-**	**0.000**	**-**	**-**	**0.000**	**-**	**-**	**7.406**	**-**	**-**	**-**	**-**	**-**	**7.406**

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

Exhibit P-40, Budget Line Item Justification: PB 2022 Air Force	Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 3022F: Procurement, Space Force / BA 01: Space Procurement, SF / BSA 10: 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: 1206860SF

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)*	-	0.000	47.741	10.429	-	10.429	-	-	-	-	-	-
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	-	0.000	47.741	10.429	-	10.429	-	-	-	-	-	-
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**-**	**0.000**	**47.741**	**10.429**	**-**	**10.429**	**-**	**-**	**-**	**-**	**-**	**-**
(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 Department of 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 Space Force procured launch services and allows the Space 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 is transforming the organization and implementation of space acquisition to an enterprise approach, to increase 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 existing 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 1206860SF.

Exhibit P-40, Budget Line Item Justification: PB 2022 Air Force	Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 3022F: Procurement, Space Force / BA 01: Space Procurement, SF / BSA 10: 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: 1206860SF

Line Item MDAP/MAIS Code: N/A

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-40a	Rocket Systems Launch Program				- / -	- / -	- / 47.741	- / 10.429	- / -	- / 10.429
P-40	**Total Gross/Weapon System Cost**				**- / -**	**- / 0.000**	**- / 47.741**	**- / 10.429**	**- / -**	**- / 10.429**

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

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

Justification:
FY 2022 RSLP procurement funding supports small launch and rideshare services to satisfy Department of Defense (DoD) warfighter, national security, and other Government Spacelift missions. This includes independent mission assurance, early integration activities and analysis/support, technical refresh, and allow the program to rapidly respond to implement system resiliency and situational awareness necessary to operate in the contested space domain. Activities may include, but are not limited to, program office support, studies, technical analysis, etc.

FY 2022 decreased by 0.132M to adjust for inflation.

The FY 2022 funding request was reduced by 0.565M to account for the availability of prior year execution balances.

The FY 2022 decrease compared to FY 2021 due to launch service procurements in FY 2021.

Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2022 Air Force		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 3022F / 01 / 10	P-1 Line Item Number / Title: RSLP00 / Rocket Systems Launch Program	Aggregated Items Title: Rocket Systems Launch Program

Item Number / Title [DODIC]	ID CD	MDAP/ MAIS Code	Prior Years			FY 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)
Small Launch Services																				
New Item	A		-	-	-	-	-	-	-	-	39.141	-	-	1.052	-	-	-	-	-	1.052
Subtotal: Small Launch Services			**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	***39.141***	**-**	**-**	***1.052***	**-**	**-**	**-**	**-**	**-**	***1.052***
Mission Assurance																				
New Item	A		-	-	-	-	-	-	-	-	2.100	-	-	2.652	-	-	-	-	-	2.652
Subtotal: Mission Assurance			**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	***2.100***	**-**	**-**	***2.652***	**-**	**-**	**-**	**-**	**-**	***2.652***
Launch Support																				
New Item	A		-	-	-	-	-	-	-	-	6.500	-	-	6.725	-	-	-	-	-	6.725
Subtotal: Launch Support			**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	***6.500***	**-**	**-**	***6.725***	**-**	**-**	**-**	**-**	**-**	***6.725***
Total			**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**47.741**	**-**	**-**	**10.429**	**-**	**-**	**-**	**-**	**-**	**10.429**

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

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Exhibit P-40, Budget Line Item Justification: PB 2022 Air Force	Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 3022F: Procurement, Space Force / BA 01: Space Procurement, SF / BSA 10: 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: N/A
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)*	0.000	0.000	11.279	0.000	-	0.000	-	-	-	-	-	-
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	0.000	0.000	11.279	0.000	-	0.000	-	-	-	-	-	-
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**0.000**	**0.000**	**11.279**	**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 Space Fence effort is a ground-based sensor 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 provides a more accurate and timely detection capability of smaller orbiting objects, primarily in low-earth orbit (LEO), using higher frequency S-band. As a result, greatly expands 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 was delivered in FY 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, to increase 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 existing capabilities.

Funding for this exhibit is contained in PE 1206426SF.

Justification:
No FY 2022 funding requested.

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Exhibit P-40, Budget Line Item Justification: PB 2022 Air Force	Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 3022F: Procurement, Space Force / BA 01: Space Procurement, SF / BSA 10: 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: 1203699SF, 1203906SF	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)*	-	0.000	86.666	64.371	-	64.371	-	-	-	-	-	-
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	-	0.000	86.666	64.371	-	64.371	-	-	-	-	-	-
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**-**	**0.000**	**86.666**	**64.371**	**-**	**64.371**	**-**	**-**	**-**	**-**	**-**	**-**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Flyaway Unit Cost *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-

Description:

Space Mods Space 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, to increase 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 existing capabilities.

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

PE 1203160SF 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). Critical DC3GS component spares have been depleted,parts cannibalized, and are no longer sustainable. Therefore, 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.

Exhibit P-40, Budget Line Item Justification: PB 2022 Air Force		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 3022F: Procurement, Space Force / BA 01: Space Procurement, SF / BSA 10: 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:** 1203699SF, 1203906SF	**Other Related Program Elements:** N/A
Line Item MDAP/MAIS Code: N/A		

PE 1203165SF 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 1203699SF 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 commands (CCMDs)--US European Command (USEUCOM), US Central Command (USCENTCOM), and US Indo-Pacific Command (USINDOPACOM); North Atlantic Treaty Organization (NATO); and multiple foreign partner nations located within each of the serviced CCMDs. 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 CCMDs 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 1203873SF Ballistic Missile Defense Radars (BMD Radars)

COBRA DANE is the most powerful, sensitive, and accurate Ground-based Midcourse Defense (GMD) radar and the premier 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.

COBRA DANE has two primary missions. One is to support US Strategic Command's (USSTRATCOM) BMD 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 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.

COBRA DANE's other primary mission is to support US Space Command's (USSPACECOM) 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 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). COBRA DANE also supports USSPACECOM's Space Object Identification (SOI) mission by providing narrowband radar data of man-made resident space objects in the LEO regime. SOI information is used to ascertain the mission and operational status of various payloads and aids in forecasting maneuvers or deorbits. COBRA DANE mission equipment and associated sustainment suites consist of a mix of unique, custom-built components that are increasingly difficult to maintain on a 40 year old radar due to non-availability of replacement parts. Subsystems are no longer supported by the original equipment manufacturers. In addition, transmitter groups, traveling wave tubes, time delay units and all associated components and spares require replacement. Due to the limited demand rates for spares, 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.

Exhibit P-40, Budget Line Item Justification: PB 2022 Air Force		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 3022F: Procurement, Space Force / BA 01: Space Procurement, SF / BSA 10: 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: 1203699SF, 1203906SF	Other Related Program Elements: N/A
Line Item MDAP/MAIS Code: N/A		

PE 1203906SF Cheyenne Mountain Complex

In FY 2021, Cheyenne Mountain Complex efforts were transferred to Appropriation 3022, Procurement, Space Force, PE 1203906SF, from Appropriation 3021, Space Procurement, Air Force, PE 1203906F, WSC 833160, per Congressional direction.

The North American Aerospace Defense Command (NORAD) Cheyenne Mountain Complex (NCMC) - Integrated Tactical Warning/Attack Assessment (ITW/AA) system provides timely, unambiguous, and continuous warning and attack assessment of air, missile and space threats to North America, and geographical theaters. This system integrates and correlates missile launch and air surveillance information from certified sources to assess the nature of an enemy launch/attack and issue warnings to the President of the United States, Canadian National Leadership, United States Secretary of Defense, National Military Command Center and war-fighting Combatant Commanders. NCMC-ITW/AA and Legacy Space Command and Control (C2) systems provide NORAD/US Northern Command (USNORTHCOM), USSTRATCOM, and USSPACECOM command structures with the information management, decision aids, and connectivity required to monitor, assess, plan, and execute assigned strategic, space operations, and missile defense missions. It provides Nuclear C2 and detonation detection.

PE 1203909SF Ballistic Missile Early Warning System (BMEWS)

The BALLISTIC MISSILE EARLY WARNING SYSTEM (BMEWS) is a ground-based radar system with missions to support Missile Correlation, SDA, and Missile Defense Centers. The radar system provides USSTRATCOM with credible 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 SSN 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 Combined 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 radar systems are all AN/FPS-132 Upgraded Early Warning Radars (UEWRs) located at Thule Air Base, Greenland; Clear Air Force Station, AK; and Royal Air Force (RAF) Fylingdales, UK. The UEWR 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 Commercial-off-the-Shelf (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 1205912SF SEA-LAUNCHED BALLISTIC MISSILE (SLBM) RADAR WARNING SYSTEM:

The primary mission of the SLBM Detection and Warning System is to provide USSTRATCOM with credible ITW/AA data on all SLBMs penetrating the coverage area. This data includes an estimation of 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 ICBMs penetrating the coverage area. Additionally, Perimeter Acquisition Radar Attack Characterization System (PARCS) and UEWRs support the SDA 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 SLBM Detection and Warning System currently consists of: a) the AN/FPQ-16 PARCS, located at Cavalier AFS, ND, and b) the AN/FPS-132 UEWRs located at Beale AFB, CA and Cape Cod AFS, MA. Additionally, there is a site for testing located in the Centralized Integration Support Facility (CISF) at Peterson AFB, CO. The UEWR and PARCS 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.

Exhibit P-40, Budget Line Item Justification: PB 2022 Air Force	Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 3022F: Procurement, Space Force / BA 01: Space Procurement, SF / BSA 10: 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: 1203699SF, 1203906SF	Other Related Program Elements: N/A

Line Item MDAP/MAIS Code: N/A

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-40a	Defense Meteorological Satellite Program (SPACE)				- / -	- / -	- / 1.105	- / 0.000	- / -	- / 0.000
P-40a	NAVSTAR Global Positioning				- / 0.000	- / 0.000	- / 13.887	- / 0.081	- / 0.000	- / 0.081
P-40a	Shared Early Warning (SEW)				- / 0.000	- / 0.000	- / 0.361	- / 0.363	- / 0.000	- / 0.363
P-40a	Ballistic Missile Defense Radars				- / -	- / -	- / 40.913	- / 33.525	- / -	- / 33.525
P-40a	Cheyenne Mountain Complex				- / 0.000	- / 0.000	- / 2.115	- / 2.122	- / 0.000	- / 2.122
P-40a	Ballistic Missile Early Warning				- / 0.000	- / 0.000	- / 8.439	- / 0.000	- / 0.000	- / 0.000
P-40a	Ballistic Missile Early Warning				- / -	- / -	- / 18.548	- / 19.831	- / -	- / 19.831
P-40a	Submarine-Launched Ballistic Missile				- / 0.000	- / 0.000	- / 0.798	- / 0.000	- / 0.000	- / 0.000
P-3a	1 / PARCS Block 02 (Reliability & Maintainability)		A		- / -	- / -	- / 0.500	- / 8.449	- / 0.000	- / 8.449
P-40	**Total Gross/Weapon System Cost**				**- / -**	**- / 0.000**	**- / 86.666**	**- / 64.371**	**- / -**	**- / 64.371**

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

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

Justification:
Defense Meteorological Satellite Program (SPACE)

PE 1203160SF: No FY2022 funding requested.

NAVSTAR Global Positioning (P-40a)

FY 2022 funding procures GPS Architecture Evolution Plan (AEP), GPS Information Network (GIN), and Launch Anomaly Resolution and Disposal Operations (LADO) commercial equipment that has become obsolete/unsupportable or requires upgrades. Funding will procure equipment for the OCS ground sites including the Master Control Station (MCS), Alternate Master Control Station (AMCS), four Ground Antennas (GAs), six Monitor Stations (MSs), a contractor lab facility, and the Telecommunications Simulator Test Set (TSTS). Modifications include required procurement, nonrecurring engineering, installation, testing, configuration management, security, quality assurance and technical documentation. Funding also procures cybersecurity enhancements to mitigate shortfalls in the legacy system. Funding sustains OCS until OCX transitions to operations, to include support for GPS III and fielding of Modernized GPS User Equipment (MGUE). Rapidly respond to implement system resiliency and situational awareness necessary to operate in the contested space domain. Activities may include, but are not limited to program office support, studies, technical analysis, etc.

This effort is funded in PE 1203165SF NAVSTAR GPS (Space and Control Segments)

FY 2022 budget decreased for the availability of prior year balances.

Shared Early Warning (SEW) (P-40a)

FY 2022 will fund ongoing program support costs for SEWS modification efforts and will fund capital equipment replacement to replace outdated components such as, but not limited to, virtual processors, routers, intrusion detection software, network logging software, and other material solutions required for operational and cybersecurity continuity. Due to the limited spares demand rates, and indefinite system lifespan, Life of Type buys may be required to support this weapon system. SEWS utilizes both COTS and Government Off-the-Shelf (GOTS) equipment to comply with emerging threat capability requirements.

Exhibit P-40, Budget Line Item Justification: PB 2022 Air Force		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 3022F: Procurement, Space Force / BA 01: Space Procurement, SF / BSA 10: 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: 1203699SF, 1203906SF	Other Related Program Elements: N/A
Line Item MDAP/MAIS Code: N/A		

This effort is funded in PE 1203699S Shared Early Warning System (SEWS)

Ballistic Missile Defense Radars (P-40a)

COBRA DANE Block 00: FY 2022 will fund ongoing program support costs for COBRA DANE modification efforts and will fund Capital Equipment Replacement of unsupportable mission and support equipment and initial spares to include, but not limited to, Transmitter Group Replacement, Traveling Wave Tubes, and associated components. Due to limited spares demand rates and indefinite system lifespan, life-of-type buys may be required to support this weapon system.

This effort is funded in PE 1203873SF Ballistic Missile Defense Radars

Cheyenne Mountain Complex (P-40a)

NORAD CHEYENNE MOUNTAIN COMPLEX-INTEGRATED TACTICAL WARNING/ATTACK ASSESSMENT (NCMC-ITW/AA) SYSTEMS: FY 2022 funding procures replacement for reliability and maintainability of the information systems hardware and associated systems software for the NCMC-ITW/AA system, continues program support for the NCMC-ITW/AA Block 04 program, initiates the NCMC-ITW/AA Block 05 program, and initiates planning efforts for the NCMC-ITW/AA Block 06 program. Program support includes acquisition support/strategy, engineering and technical expertise associated with procurement, support services, test, travel and other program-related costs associated with install of procurement equipment. Due to the limited spares demand rates, and indefinite system lifespan, life-of-type buys may be required to support weapons system modifications across the active NCMC-ITW/AA Block programs.

This effort is funded in PE 1203906SF - Cheyenne Mountain Complex

Ballistic Missile Early Warning System (BMEWS)/PAVE PHASED ARRAY WARNING SYSTEM (PAVE PAWS) (BPP) Block 00 & Block 03 (P-40a)

BPP Block 00 Update: FY 2022 will fund ongoing program support costs for UEWR modification efforts and will fund Capital Equipment Replacement of unsupportable mission and support equipment, initial spares, and lifetime buys of spares to include, but not limited to, sub-array power supplies (SAPS), beam steering units (BSU), array group drivers (AGD), and transitional-receiver exciters (T-REX), and associated components. Due to the limited spares demand rates, and indefinite system lifespan, life-of-type buys may be required to support this weapon system.

BPP Block 03 Update: FY 2022 will fund ongoing program support costs for UEWR modification efforts.

This effort is funded in PE 1203909SF Ballistic Missile Early Warning System (BMEWS) and PE 1203912SF Sea Launched Ballistic Missile (SLBM) Detection and Warning System.

Perimeter Acquisition Radar Attack Characterization System (PARCS) Block 02 (P-3a)

FY 2022 will fund Block 02 by continuing modifications to the PARCS system for the replacement of unsupportable and unreliable components to include (with any required initial spares), but not limited to, the PARCS Mission Data Processor, Radar Transmitter, Antenna Group, Exciter Group, Radio Frequency Signal Processor Group, Performance Monitor Group, Radar Return Generator Group, Digital Data Group, and Radar Controller Group. Due to the limited spares demand rates, and indefinite system lifespan, Life of Type buys may be required to support this weapon system. Additionally, FY 2022 will fund ongoing program support costs for the Block 02 program. PARCS funding procures replacement components for unsupportable, unobtainable, and unreliable system components. PARCS equipment is composed of custom-built components that became obsolete in the 1980s. Most spare parts for this system are no longer available and have no logistics tail. Without replacements there is a high risk of mission failure and/or unacceptable downtime for repair. To best ensure operational availability, replacement projects are performed in phases targeting the highest risk components of the subsystems.

The effort is funded in PE 1203912SF Sea Launched Ballistic Missile (SLBM) Detection and Warning System.

Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2022 Air Force		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 3022F / 01 / 10	**P-1 Line Item Number / Title:** SPCMOD / Space Mods	**Aggregated Items Title:** Defense Meteorological Satellite Program (SPACE)

Item Number / Title [DODIC]	ID CD	MDAP/ MAIS Code	Prior Years			FY 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																				
Communication Engineering Change Proposal	A		-	-	-	-	-	-	1.105	1	1.105	-	-	0.000	-	-	-	-	-	0.000
Subtotal: Hardware			**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	***1.105***	**-**	**-**	***0.000***	**-**	**-**	**-**	**-**	**-**	***0.000***
Total			**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**1.105**	**-**	**-**	**0.000**	**-**	**-**	**-**	**-**	**-**	**0.000**

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

Exhibit P-40a, Budget Item Justification For Aggregated Modification Items: PB 2022 Air Force		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 3022F / 01 / 10	**P-1 Line Item Number / Title:** SPCMOD / Space Mods	**Aggregated Modification Items Title:** NAVSTAR Global Positioning

Item Number / Title	ID CD	MDAP/ MAIS Code	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)
NAVSTAR-1 / NAVSTAR GPS-OCS COTS UPGRADE			-	-	-	-	-	-	-	-	13.887	-	-	0.081	-	-	-	-	-	0.081
Total			**-**	**-**	**0.000**	**-**	**-**	**0.000**	**-**	**-**	**13.887**	**-**	**-**	**0.081**	**-**	**-**	**0.000**	**-**	**-**	**0.081**

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

Modification Information:

Item Number / Title	Models of Systems Affected	Modification Type
NAVSTAR-1 / NAVSTAR GPS-OCS COTS UPGRADE	Blackhawk and IIR Flight Nav Systems	Capability Improvement

Exhibit P-40a, Budget Item Justification For Aggregated Modification Items: PB 2022 Air Force		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 3022F / 01 / 10	**P-1 Line Item Number / Title:** SPCMOD / Space Mods	**Aggregated Modification Items Title:** Shared Early Warning (SEW)

Item Number / Title	ID CD	MDAP/ MAIS Code	Prior Years			FY 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)
SEW1 / Shared Early Warning (SEW)			-	-	-	-	-	-	-	-	0.361	-	-	0.363	-	-	-	-	-	0.363
Total			**-**	**-**	**0.000**	**-**	**-**	**0.000**	**-**	**-**	**0.361**	**-**	**-**	**0.363**	**-**	**-**	**0.000**	**-**	**-**	**0.363**

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

Modification Information:

Item Number / Title	Models of Systems Affected	Modification Type
SEW1 / Shared Early Warning (SEW)	SEWS	Reliability & Maintainability

Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2022 Air Force		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 3022F / 01 / 10	**P-1 Line Item Number / Title:** SPCMOD / Space Mods	**Aggregated Items Title:** Ballistic Missile Defense Radars

Item Number / Title [DODIC]	ID CD	MDAP/ MAIS Code	Prior Years			FY 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)
Block 00																				
New Item	A		-	-	-	-	-	-	40.913	1	40.913	33.525	1	33.525	-	-	-	33.525	1	33.525
Subtotal: Block 00			**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	***40.913***	**-**	**-**	***33.525***	**-**	**-**	**-**	**-**	**-**	***33.525***
Total			**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**40.913**	**-**	**-**	**33.525**	**-**	**-**	**-**	**-**	**-**	**33.525**

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

Remarks:

Cobra Dane Block 00: FY 2022 will fund Cobra Dane modification efforts and Capital Equipment Replacement of unsupportable mission and support equipment and initial spares to include, but not limited to, Transmitter Group Replacement, Traveling Wave Tubes, Time Delay Units, Radio Frequency Level Sensors and associated components. Due to limited spares demand rates and indefinite system lifespan, life of type buys may be required to support this weapon system.

This effort is funded in PE 1203873SF Ballistic Missile Defense Radars.

Exhibit P-40a, Budget Item Justification For Aggregated Modification Items: PB 2022 Air Force		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 3022F / 01 / 10	**P-1 Line Item Number / Title:** SPCMOD / Space Mods	**Aggregated Modification Items Title:** Cheyenne Mountain Complex

Item Number / Title	ID CD	MDAP/ MAIS Code	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)
NCMCB4 / NORAD Cheyenne Mountain Complex Block 04			-	-	-	-	-	-	-	-	2.115	-	-	0.200	-	-	-	-	-	0.200
NCMCB5 / Block 05			-	-	-	-	-	-	-	-	-	-	-	1.922	-	-	-	-	-	1.922
Total			**-**	**-**	**0.000**	**-**	**-**	**0.000**	**-**	**-**	**2.115**	**-**	**-**	**2.122**	**-**	**-**	**0.000**	**-**	**-**	**2.122**

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

Modification Information:

Item Number / Title	Models of Systems Affected	Modification Type
NCMCB4 / NORAD Cheyenne Mountain Complex Block 04	NORADCheyenneMountainComplex	Reliability & Maintainability
NCMCB5 / Block 05	NORADCheyenneMountainComplex	Reliability & Maintainability

Exhibit P-40a, Budget Item Justification For Aggregated Modification Items: PB 2022 Air Force		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 3022F / 01 / 10	**P-1 Line Item Number / Title:** SPCMOD / Space Mods	**Aggregated Modification Items Title:** Ballistic Missile Early Warning

Item Number / Title	ID CD	MDAP/ MAIS Code	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)
BMEWS-1 / BPP Block 02			-	-	-	-	-	-	-	-	4.439	-	-	-	-	-	-	-	-	-
BMEWS-3 / DPSP			-	-	-	-	-	-	-	-	4.000	-	-	-	-	-	-	-	-	-
Total			**-**	**-**	**0.000**	**-**	**-**	**0.000**	**-**	**-**	**8.439**	**-**	**-**	**0.000**	**-**	**-**	**0.000**	**-**	**-**	**0.000**

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

Modification Information:

Item Number / Title	Models of Systems Affected	Modification Type
BMEWS-1 / BPP Block 02	NA	Reliability & Maintainability
BMEWS-3 / DPSP	TBD	Reliability & Maintainability

Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2022 Air Force		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 3022F / 01 / 10	**P-1 Line Item Number / Title:** SPCMOD / Space Mods	**Aggregated Items Title:** Ballistic Missile Early Warning

Item Number / Title [DODIC]	ID CD	MDAP/ MAIS Code	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)
BPP Block 00 Update																				
New Item	A		-	-	-	-	-	-	17.636	1	17.636	9.425	1	9.425	-	-	-	9.425	1	9.425
Subtotal: BPP Block 00 Update			**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	***17.636***	**-**	**-**	***9.425***	**-**	**-**	**-**	**-**	**-**	***9.425***
BPP Block 03 Update																				
New Item	A		-	-	-	-	-	-	0.912	1	0.912	10.406	1	10.406	-	-	-	10.406	1	10.406
Subtotal: BPP Block 03 Update			**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	***0.912***	**-**	**-**	***10.406***	**-**	**-**	**-**	**-**	**-**	***10.406***
Total			**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**18.548**	**-**	**-**	**19.831**	**-**	**-**	**-**	**-**	**-**	**19.831**

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

Exhibit P-40a, Budget Item Justification For Aggregated Modification Items: PB 2022 Air Force		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 3022F / 01 / 10	**P-1 Line Item Number / Title:** SPCMOD / Space Mods	**Aggregated Modification Items Title:** Submarine-Launched Ballistic Missile

Item Number / Title	ID CD	MDAP/ MAIS Code	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)
PARCSB1 / PARCS Block 01			-	-	-	-	-	-	-	-	0.798	-	-	-	-	-	-	-	-	-
Total			**-**	**-**	**0.000**	**-**	**-**	**0.000**	**-**	**-**	**0.798**	**-**	**-**	**0.000**	**-**	**-**	**0.000**	**-**	**-**	**0.000**

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

Modification Information:

Item Number / Title	Models of Systems Affected	Modification Type
PARCSB1 / PARCS Block 01	NA	Reliability & Maintainability

Exhibit P-3a, Individual Modification: PB 2022 Air Force		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 3022F / 01 / 10	P-1 Line Item Number / Title: SPCMOD / Space Mods	Modification Number / Title: 1 / PARCS Block 02
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)*	-	-	0.500	8.449	0.000	8.449
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	-	-	0.500	8.449	0.000	8.449
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**-**	**-**	**0.500**	**8.449**	**0.000**	**8.449**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)						
Initial Spares *($ in Millions)*	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Millions)*	-	-	-	-	-	-

Description:

Perimeter Acquisition Radar Attack Characterization System (PARCS) Program Office plans for and procures replacement components for otherwise unsupportable, unobtainable, and unreliable system components. PARCS equipment is composed of custom built components that became obsolete in the 1980s. Most spare parts for this system are no longer available and have no logistics tail. Without replacements there is a high risk of mission failure and/or unacceptable downtime for repair. To best ensure operational availability, replacement projects are performed in phases targeting the highest risk components of the subsystems.

This program was previously funded out of Air Force Appropriation 3021 Space Procurement, PEC: C3912F, BPAC: 23SMOD.

FY 2022 will fund Block 02 by continuing modifications to the PARCS system for the replacement of unsupportable and unreliable components to include (with any required initial spares), but not limited to, the PARCS Mission Data Processor, Radar Transmitter, Antenna Group, Exciter Group, Radio Frequency Signal Processor Group, Performance Monitor Group, Radar Return Generator Group, Digital Data Group, and Radar Controller Group. Due to the limited spares demand rates, and indefinite system lifespan, Life of Type buys may be required to support this weapon system. Additionally, FY 2022 will fund ongoing program support costs for the Block 02 program.

Milestone/Development Status

N/A

Exhibit P-3a, Individual Modification: PB 2022 Air Force		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 3022F / 01 / 10	P-1 Line Item Number / Title: SPCMOD / Space Mods	Modification Number / Title: 1 / PARCS Block 02
ID Code (A=Service Ready, B=Not Service Ready) : A	MDAP/MAIS Code:	
Models of Systems Affected: NA	Modification Type: Reliability & Maintainability	Related RDT&E PEs:

Financial Plan	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*
Procurement						
Modification Item 1 of 2: COMMON: Install Kits (2)						
A Kits						
Recurring						
COMMON: Install Kits:INSTALL KITS Group A (Active)	- / -	- / -	- / -	1 / 0.100	- / -	1 / 0.100
Subtotal: Recurring	- / -	- / -	- / -	- / *0.100*	- / -	- / *0.100*
Subtotal: COMMON: Install Kits (2)	- / -	- / -	- / -	- / *0.100*	- / -	- / *0.100*
Modification Item 2 of 2: PARCS: EQUIPMENT (2)						
B Kits						
Recurring						
PARCS: EQUIPMENT:EQUIPMENT Group B (Active)	- / -	- / -	- / -	1 / 5.849	- / -	1 / 5.849
Subtotal: Recurring	- / -	- / -	- / -	- / *5.849*	- / -	- / *5.849*
Subtotal: PARCS: EQUIPMENT (2)	- / -	- / -	- / -	- / *5.849*	- / -	- / *5.849*
Subtotal: Procurement, All Modification Items	- / -	- / -	- / -	- / *5.949*	- / -	- / *5.949*
Support *(All Modification Items)*						
A&AS	- / -	- / -	- / 0.500	- / 2.500	- / -	- / 2.500
Subtotal: Support	- / -	- / -	- / *0.500*	- / *2.500*	- / -	- / *2.500*
Installation						
Subtotal: Installation	- / -	- / -	- / -	- / -	- / -	- / -
Total						
Total Cost (Procurement + Support + Installation)	**-**	**-**	**0.500**	**8.449**	**0.000**	**8.449**

Exhibit P-3a, Individual Modification: PB 2022 Air Force		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 3022F / 01 / 10	**P-1 Line Item Number / Title:** SPCMOD / Space Mods	**Modification Number / Title:** 1 / PARCS Block 02
ID Code (A=Service Ready, B=Not Service Ready) : A		**MDAP/MAIS Code:**

Modification Item 1 of 2: COMMON: Install Kits (2)

Manufacturer Information

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

Dates	FY 2020	FY 2021	FY 2022
Contract Dates			
Delivery Dates			

Installation Information

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

Exhibit P-3a, Individual Modification: PB 2022 Air Force		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 3022F / 01 / 10	**P-1 Line Item Number / Title:** SPCMOD / Space Mods	**Modification Number / Title:** 1 / PARCS Block 02
ID Code (A=Service Ready, B=Not Service Ready) : A		**MDAP/MAIS Code:**
Modification Item 2 of 2: PARCS: EQUIPMENT (2)		

Manufacturer Information

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

Dates	FY 2020	FY 2021	FY 2022
Contract Dates			Mar 2022
Delivery Dates			Jun 2023

Installation Information

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

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Exhibit P-40, Budget Line Item Justification: PB 2022 Air Force	Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 3022F: Procurement, Space Force / BA 01: Space Procurement, SF / BSA 10: 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: 1203182F, 1203182SF
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)*	-	0.000	90.492	93.774	-	93.774	-	-	-	-	-	-
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	-	0.000	90.492	93.774	-	93.774	-	-	-	-	-	-
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**-**	**0.000**	**90.492**	**93.774**	**-**	**93.774**	**-**	**-**	**-**	**-**	**-**	**-**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Flyaway Unit Cost *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-

Description:

The Spacelift Range System (SLRS), also known as the Launch and Test Range System (LTRS), provides public safety and assured access to space. LTRS operates at the Eastern Range (ER) at Patrick SFB/Cape Canaveral SFS, FL and the Western Range (WR) at Vandenberg SFB, 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/EW 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 Space 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 Commodities Procurement: LTRS commodities procurement will meet Space Force Commander's Range of the Future (ROTF) direction to: (1) ensure LTRS meets increasing launch capacity demand on the ER and WR; and (2) provide user support to launch and test requirement holders. The Commander's intent is that LTRS capability will not constrain the national space launch cadence. The Space Force will use various contract vehicles to procure, configure, install and integrate ROTF system architecture modifications to support the requirement for 80 launches per year and achieve vehicle performance assessment rates of up to 30 megabytes (Mb) per second. These modifications will include advanced digital data receive, transport and processing capability and modernized telemetry formats leveraging dispersed and disaggregated deployment concepts.

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 Space Force will either move existing equipment or procure new COTS equipment if necessary, to meet system requirements and minimize impacts to scheduled launches.

Exhibit P-40, Budget Line Item Justification: PB 2022 Air Force		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 3022F: Procurement, Space Force / BA 01: Space Procurement, SF / BSA 10: 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: 1203182F, 1203182SF
Line Item MDAP/MAIS Code: N/A		

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, 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.

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, to increase 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 existing capabilities.

Funding for this exhibit is contained in PE 1203182SF.

Exhibit P-40, Budget Line Item Justification: PB 2022 Air Force	Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 3022F: Procurement, Space Force / BA 01: Space Procurement, SF / BSA 10: 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:** 1203182F, 1203182SF
Line Item MDAP/MAIS Code: N/A	

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	Space Lift Range System Modernization		A		- / -	- / -	- / 66.787	- / 73.709	- / -	- / 73.709
P-40a	Space Lift Range System Modifications				- / 0.000	- / 0.000	- / 7.727	- / 3.335	- / 0.000	- / 3.335
P-3a	1 / Range Communications Facility (RCF) (Reliability & Maintainability)		B		- / -	- / 0.000	- / 15.978	- / 16.730	- / 0.000	- / 16.730
P-40	**Total Gross/Weapon System Cost**				**- / -**	**- / 0.000**	**- / 90.492**	**- / 93.774**	**- / -**	**- / 93.774**

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

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

Justification:

LTRS Commodities Procurement (P-5): FY 2022 funds procure ROTF capital equipment required to meet requirements for capacity and data collection.
LTRS Interim Supply Support (P-5): FY 2022 funds will provide interim supply support, to include supplies and associated interim supply support management.
LTRS Support Services (P-5): FY 2022 funds pay for FFRDC mission assurance activities to ensure all twelve subsystems are compatible with mission rules and do not pose a risk to safe and cost-effective satellite launches. Funds are also used for Enterprise SE&I to ensure baseline documentation and modernization activities remain synchronized with the sustainment baseline.

WMN (P-40a): FY 2022 funds will finance the Red/Black Data Matrix effort and Range Integration. Provide capability to securely receive/distribute/archive classified information per MDA and Global Strike security classification guide requirements for Western Range (WR) Major Range and Test Facility Base (MRTFB) launch operations.
RCDM (P-40a): FY 2022 funds will pay for Phase 3 JDMTA ICS and Phase 4 Cape 1A Legacy Removal. The projects provide continuous/non-interrupted ground command-destruct capability to support National Security space launch operations through Chief of Space Operations (CSO) mandated Autonomous Flight Safety System (AFSS) 2025 implementation; as well as preserve Major Range and Test Facility Base (MRTFB) ground command-destruct capability through CSO's mandated AFSS date for DoD testers in 2030.

RCF (P-3a): FY 2022 funds will relocate MEN to RCF building and Phase 3A2 contract. Launch and Test Range System (LTRS) communication circuits must be moved out of the current X-Y Building and into the Range Communications Facility (RCF) on Cape Canaveral Space Force Station by 2023 to: (1) provide modernized communication system for Range of the Future (ROTF) accelerated ops; (2) relocate Eastern Range (ER) LTRS communication systems into a hurricane-proof facility; and (3) relocate ER LTRS communications systems into a secure facility with proper force protection infrastructure.

Additionally, FY 2022 funding will allow the program to rapidly respond to implement system resiliency and situational awareness necessary to operate in the contested space domain. Activities include, but are not limited to, program office support, studies, technical analysis, etc.

Exhibit P-5, Cost Analysis: PB 2022 Air Force		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 3022F / 01 / 10	**P-1 Line Item Number / Title:** SPRNGE / Spacelift Range System Space	**Item Number / Title [DODIC]:** Space Lift Range System Modernization
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)*	-	-	66.787	73.709	-	73.709
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	-	-	66.787	73.709	-	73.709
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**-**	**-**	**66.787**	**73.709**	**-**	**73.709**
(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 - Spacelift Range System Space Cost																		
Non Recurring Cost																		
Commodities Procurement	-	-	-	-	-	-	-	-	26.892	-	-	34.010	-	-	-	-	-	34.010
Subtotal: Non Recurring Cost	-	-	-	-	-	-	-	-	*26.892*	-	-	*34.010*	-	-	-	-	-	*34.010*
Subtotal: Hardware - Spacelift Range System Space Cost	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	***26.892***	**-**	**-**	***34.010***	**-**	**-**	**-**	**-**	**-**	***34.010***
Logistics - Spacelift Range System Space Cost																		
Recurring Cost																		
Interim Supply Support Material (Parts/ Supplies)	-	-	-	-	-	-	-	-	6.631	-	-	6.731	-	-	-	-	-	6.731
Interim Supply Support Services/Labor	-	-	-	-	-	-	-	-	0.000	-	-	0.000	-	-	-	-	-	0.000
Technical Mission Analysis	-	-	-	-	-	-	-	-	4.400	-	-	5.278	-	-	-	-	-	5.278
Enterprise Systems Engineering and Integration	-	-	-	-	-	-	-	-	15.622	-	-	15.601	-	-	-	-	-	15.601
Subtotal: Recurring Cost	-	-	-	-	-	-	-	-	*26.653*	-	-	*27.610*	-	-	-	-	-	*27.610*
Subtotal: Logistics - Spacelift Range System Space Cost	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	***26.653***	**-**	**-**	***27.610***	**-**	**-**	**-**	**-**	**-**	***27.610***
Support - Spacelift Range System Space Cost																		
FFRDC	-	-	-	-	-	-	-	-	3.178	-	-	3.355	-	-	-	-	-	3.355

Exhibit P-5, Cost Analysis: PB 2022 Air Force		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 3022F / 01 / 10	**P-1 Line Item Number / Title:** SPRNGE / Spacelift Range System Space	**Item Number / Title [DODIC]:** Space Lift Range System Modernization
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)
Advisory and Assistance Services (A&AS)	-	-	-	-	-	-	-	-	5.179	-	-	3.722	-	-	-	-	-	3.722
Other Support	-	-	-	-	-	-	-	-	4.885	-	-	5.012	-	-	-	-	-	5.012
Subtotal: Support - Spacelift Range System Space Cost	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	***13.242***	**-**	**-**	***12.089***	**-**	**-**	**-**	**-**	**-**	***12.089***
Gross/Weapon System Cost	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**66.787**	**-**	**-**	**73.709**	**-**	**-**	**-**	**-**	**-**	**73.709**

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

Exhibit P-40a, Budget Item Justification For Aggregated Modification Items: PB 2022 Air Force		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 3022F / 01 / 10	**P-1 Line Item Number / Title:** SPRNGE / Spacelift Range System Space	**Aggregated Modification Items Title:** Space Lift Range System Modifications

Item Number / Title	ID CD	MDAP/ MAIS Code	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)
02-WMN / Western Range Modernization of Network (WMN)			-	-	-	-	-	-	-	-	2.639	-	-	2.214	-	-	-	-	-	2.214
03-RCDM / Range Command Destruct Modernization (RCDM)			-	-	-	-	-	-	-	-	5.088	-	-	1.121	-	-	-	-	-	1.121
Total			**-**	**-**	**0.000**	**-**	**-**	**0.000**	**-**	**-**	**7.727**	**-**	**-**	**3.335**	**-**	**-**	**0.000**	**-**	**-**	**3.335**

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

Modification Information:

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

Exhibit P-3a, Individual Modification: PB 2022 Air Force		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 3022F / 01 / 10	**P-1 Line Item Number / Title:** SPRNGE / Spacelift Range System Space	**Modification Number / Title:** 1 / Range Communications Facility (RCF)
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)*	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	-	0.000	15.978	16.730	0.000	16.730
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	-	0.000	15.978	16.730	0.000	16.730
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**-**	**0.000**	**15.978**	**16.730**	**0.000**	**16.730**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)						
Initial Spares *($ in Millions)*	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Millions)*	-	-	-	-	-	-

Description:

FY 2022 funds will relocate MEN to RCF building and Phase 3A2 contract.

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

NOTE: Procurement totals include all kits and installation costs.

Predecessor to enable ROTF launch capacity data collection equipment and modifications.

Milestone/Development Status

Post Milestone C - Production and Development Phase

Exhibit P-3a, Individual Modification: PB 2022 Air Force		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 3022F / 01 / 10	**P-1 Line Item Number / Title:** SPRNGE / Spacelift Range System Space	**Modification Number / Title:** 1 / Range Communications Facility (RCF)
ID Code (A=Service Ready, B=Not Service Ready) : B	**MDAP/MAIS Code:**	
Models of Systems Affected: RCF	**Modification Type:** Reliability & Maintainability	**Related RDT&E PEs:** 1203182F

Financial Plan	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*
Procurement						
Modification Item 1 of 1: Range Commincations Facility (RCF)						
B Kits						
Recurring						
Range Commincations Facility (RCF):EQUIPMENT Group B (Active)	- / -	- / -	1 / 15.978	1 / 16.730	- / -	1 / 16.730
Subtotal: Recurring	- / -	- / -	- / *15.978*	- / *16.730*	- / -	- / *16.730*
Subtotal: Range Commincations Facility (RCF)	- / -	- / -	- / *15.978*	- / *16.730*	- / -	- / *16.730*
Subtotal: Procurement, All Modification Items	- / -	- / -	- / *15.978*	- / *16.730*	- / -	- / *16.730*
Installation						
Subtotal: Installation	- / -	- / -	- / -	- / -	- / -	- / -
Total						
Total Cost (Procurement + Support + Installation)	**-**	**0.000**	**15.978**	**16.730**	**0.000**	**16.730**

Exhibit P-3a, Individual Modification: PB 2022 Air Force		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 3022F / 01 / 10	**P-1 Line Item Number / Title:** SPRNGE / Spacelift Range System Space	**Modification Number / Title:** 1 / Range Communications Facility (RCF)
ID Code (A=Service Ready, B=Not Service Ready) : B		**MDAP/MAIS Code:**

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

Manufacturer Information

Manufacturer Name: Range Generation Next LLC	Manufacturer Location: Sterling, VA
Administrative Leadtime *(in Months)*: 0	Production Leadtime *(in Months)*: 0

Dates	FY 2020	FY 2021	FY 2022
Contract Dates		Mar 2021	Apr 2022
Delivery Dates		Mar 2021	Apr 2022

Installation Information

Method of Implementation (Organic): Org/Intermediate	**Installation Quantity:** 2

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Exhibit P-40, Budget Line Item Justification: PB 2022 Air Force		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 3022F: Procurement, Space Force / BA 02: Spares / BSA 20: Spares	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)*	0.000	0.000	1.272	1.282	-	1.282	-	-	-	-	-	-
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	0.000	0.000	1.272	1.282	-	1.282	-	-	-	-	-	-
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**0.000**	**0.000**	**1.272**	**1.282**	**-**	**1.282**	**-**	**-**	**-**	**-**	**-**	**-**
(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, sub-assemblies, 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 programs:
Information Systems Security Program
NAVSTAR Global Positioning System (Control Segment)

Justification:

Justification:
The FY 2022 budget supports initial spares for the following programs: Information Systems Security Program, NAVSTAR Global Positioning System (GPS) Space and Control Segments.

PE 1203140SF Information Systems Security Programs: FY 2022 funding (0.853M) is required to supply crypto devices for space and ground nodes, used by all Services/Agencies, to meet an NSA cybersecurity mandates.

PE 1203165SF NAVSTAR GPS: FY 2022 funding (0.439M) 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 GPS Next Generation Operational Control System (OCX) era.

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