Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Air Force												Date: May 2021
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*					R-1 Program Element (Number/Name) PE 1206423F / *Global Positioning System III - Operational Control Segment*							
COST ($ in Millions)	**Prior Years**	**FY 2020**	**FY 2021**	**FY 2022 Base**	**FY 2022 OCO**	**FY 2022 Total**	**FY 2023**	**FY 2024**	**FY 2025**	**FY 2026**	**Cost To Complete**	**Total Cost**
Total Program Element	4,505.418	439.560	0.000	0.000	0.000	0.000	-	-	-	-	-	-
67A021: *OCX*	3,986.383	380.342	0.000	0.000	0.000	0.000	-	-	-	-	-	-
67A025: *GPS Enterprise Integrator*	519.035	59.218	0.000	0.000	0.000	0.000	-	-	-	-	-	-
Program MDAP/MAIS Code: 456												

A. Mission Description and Budget Item Justification

In FY 2021, PE 1206423F, Global Positioning System III - Operational Control Segment efforts were transferred to Appropriation 3620, Research, Development, Test & Evaluation, Space Force, PE 1206423SF Global Positioning System III - Operational Control Segment from Appropriation 3600, Budget Activity 07 due to the creation of a new Appropriation for Space Force.

The Global Positioning System (GPS) is a space based Positioning, Navigation and Timing (PNT) distribution system which operates through all weather. GPS supports both civil and military users in air, space, sea and land operations. GPS is a satellite-based radio navigation system that serves military and civil users worldwide. GPS users process satellite signals to determine accurate position, velocity and time. GPS must comply with Title 10 United States Code (USC) Sec 2281 which requires that the Secretary of Defense (SECDEF) 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.

Program Element (PE) 1206423F funds Research, Development, Test and Evaluation (RDT&E) for the GPS Next Generation Operational Control System (OCX), the upgrade to OCX called OCX Block 3F to incorporate Regional Military Protection (RMP), command and control functionality for GPS III Follow-on (GPS IIIF) satellites, and the GPS Enterprise Integrator (EI). OCX acquisition was established to 1) provide command and control of legacy and GPS III satellites, 2) incorporate situational awareness to support Navigation Warfare (NAVWAR) and signal monitoring, 3) enable mission capability upgrades to support a warfighter effects-based approach to operations, and 4) integrate Department of Defense (DoD) information assurance and cybersecurity controls and capabilities. OCX Block 3F will upgrade OCX with new capabilities to synchronize with GPS IIIF Space Segment capabilities. GPS EI is responsible for architecture and system definition (the analysis and definition, management, maintenance, and evolution of the GPS Enterprise requirements and interface technical documents) as well as for the planning, execution, and fielding of the GPS Enterprise.

OCX funds support efforts such as engineering studies and analyses, architectural engineering studies, trade studies, technology needs forecasting, modernization initiatives, systems engineering, system development, resolving obsolescence issues, test and evaluation efforts, and mission operations. These activities support upgrades and product improvements for military and civil applications necessary to enable efforts to protect United States (U.S.) Military and Allies' use of GPS. Additionally, funds ensure OCX efforts meet current and future Joint Requirements Oversight Council (JROC) approved required capabilities.

OCX Block 3F will upgrade OCX with new capabilities to synchronize with GPS IIIF Space Segment and Military GPS User Equipment (MGUE) Increment 2 capabilities. This includes advanced concept development such as systems analysis, modernized control segment development, modernization/deployment of 17

monitoring stations, mission planning development, training simulators, integrated logistics support products, test resources, systems engineering required to meet the Government's obligations to the international, military and civil communities, and system requirements verification. OCX Block 3F will maintain backward compatibility and support the legacy constellation develop solutions necessary to command, control and monitor GPS IIIF, to include advance collection and integration of RMP high power regional M-code signals, rapid warfighter effects and support to GPS auxiliary payloads.

The GPS Enterprise consists of Space, Ground Control, Nuclear Detonation (NUDET) Detection System (NDS) and User Equipment Segments. The Government is responsible for the integration of the GPS Segments such that they provide worldwide Position, Navigation, and Timing (PNT) capability to support the warfighter and over four billion national security, civil, Allied and commercial GPS users.

The GPS EI project includes critical efforts associated with the Government's responsibility to accomplish integration of multiple prime contracts across the three GPS enterprise segments along with the transition to sustainment and operational communities. GPS EI maintains the current architecture and system definition, controls and validates interfaces, ensures compatibility across current Generation II and III systems, and ongoing developments such as GPS IIIF space systems, OCX control systems, and MGUE Inc 1 and MGUE Inc 2 systems. GPS EI also develops/manages plans for execution and fielding of new capability like the new Military Code for use at the earliest opportunity. Further, GPS EI provides modeling, simulation, and technical analyses of impacts for Government-directed enterprise level trades among the GPS segments leading to definition, management, maintenance, and evolution of the GPS Enterprise requirements and interface technical documents to build and ensure the integrity of the enterprise technical baseline, and perform system requirements verification.

In addition, the GPS EI project funds the technical evolution, risk reduction, enterprise-level testing and delivery of all PNT Enterprise capabilities. The GPS EI project also assists in the analysis and assessment of futures technology to continue the advancement of the PNT enterprise ensuring PNT capabilities continue to be at the forefront. Examples for Generation II include electronic protection; for Generation III, additional anti-jamming protection and additional civil signals. To accomplish this, GPS EI delivers Test and Verification capabilities, Requirements and Interface Management, and Systems Integration support across the Space, Control, and User Segments. In this capacity, GPS EI is responsible for managing this cross-program work to provide these and other capabilities.

GPS EI's analyses guide Government decisions to ensure efficient and effective synchronization and execution across all Generation II and III GPS programs. For Enterprise-wide integration to be successful, the GPS EI: works with the GPS and NDS prime contractor teams to develop plans for early risk reduction System Integration Demonstrations to ensure system interfaces and functionality meet user and system requirements; ensures all equipment and documentation is ready when needed; integrates and analyzes enterprise schedules; and conducts formal test and verification, including Requirement Verification Plans and System Test Plans and Procedures. GPS EI performs all these efforts across all PNT programs in all acquisition phases. The Government owns the GPS Enterprise system requirements and integration, and highly leverages the GPS EI team to eliminate the need to fund a development prime contractor to perform these functions. This enhances Government control, oversight and program accountability.

In FY 2023, PE 1206423F, Global Positioning System III - Operational Control Segment, Project 67A025, GPS Enterprise Integrator efforts will be transferred to PE 1203269SF, Global Positioning System IIIF, Project 653170, Space Programs, in order to continue enterprise integration activities.

Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Air Force	Date: May 2021
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 1206423F / *Global Positioning System III - Operational Control Segment*

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

This PE may include necessary civilian pay expenses required to manage, execute, and deliver OCX weapon system capability. The use of such program funds would be in addition to the civilian pay expenses budgeted in PEs 1206392F and 1206398F.

This program is in Budget Activity 7, Operational System Development because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.

B. Program Change Summary ($ in Millions)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Previous President's Budget	445.302	0.000	0.000	0.000	0.000
Current President's Budget	439.560	0.000	0.000	0.000	0.000
Total Adjustments	-5.742	0.000	0.000	0.000	0.000
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	9.904	0.000			
• SBIR/STTR Transfer	-15.646	0.000			
• Other Adjustments	0.000	0.000	0.000	0.000	0.000

Change Summary Explanation

FY 2020: +$9.904 increase for IBM to HPE Replacement

Exhibit R-2A, RDT&E Project Justification: PB 2022 Air Force			Date: May 2021
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 1206423F / *Global Positioning System II I - Operational Control Segment*	Project (Number/Name) 67A021 / *OCX*	

COST ($ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
67A021: *OCX*	3,986.383	380.342	0.000	0.000	0.000	0.000	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

GPS is a space-based PNT distribution system which operates through all weather. This project funds the research and development for OCX. This includes, but is not limited to, advanced concept development, systems engineering and analysis, modernized control segment and mission planning development, modernization/ deployment of 17 monitoring stations, training simulators, integrated logistics support products, and test resources.

OCX acquisition was established to: 1) provide command and control of legacy and GPS III satellites; 2) incorporate situational awareness to support NAVWAR and signal monitoring; 3) enable mission capability upgrades to support a warfighter effects-based approach to operations; and 4) integrate DoD information assurance and cybersecurity controls and capabilities. OCX funds will support efforts such as engineering studies and analyses, architectural engineering studies, trade studies, technology needs forecasting, technology development, systems engineering, system development, test and evaluation efforts and mission operations in support of upgrades and product improvements for military and civil applications necessary to support efforts to protect U.S. military and Allied use of GPS. Additionally, funds will ensure efforts to meet current and future JROC approved required capabilities.

OCX Block 0 (through Iteration 1.5) is the Launch and Control System (LCS) intended to conduct Launch and Early Orbit (LEO) operations and the on-orbit checkout of all GPS III satellites. OCX Block 0 is a subset of OCX Block 1.

OCX Block 1 (adds Iterations 1.6, 1.7 and 2.1 to Block 0) fields the operational capability to control all legacy satellites and civil signals (L1C/A), military signals (L1P(Y), L2P(Y)) as well as the GPS III satellites and the modernized civil signal (L2C) and the aviation safety-of-flight signal (L5). In addition, Block 1 will field the basic operational capability to control the modernized military signals (L1M and L2M M-Code), and the globally compatible signal (L1C). It also fully meets information assurance/cyber defense requirements.

OCX Block 2 fields the advanced operational capability to control the advanced features of the modernized military signals (L1M and L2M M-Code). Blocks 1 & 2 are being delivered concurrently as a result of the Oct 2016 Nunn-McCurdy review.

OCX Block 3F will modify OCX Blocks 1 and 2 to field new capabilities in support of the GPS III Follow-On (GPS IIIF) production program and incorporate Regional Military Protection (RMP) to handle future threats. OCX Block 3F will upgrade OCX with new capabilities to synchronizes with GPS IIIF Space Segment and Military GPS User Equipment (MGUE) Increment 2 capabilities. OCX Block 3F will maintain backward compatibility with the existing capabilities to support the legacy GPS constellation and integrate into Block 1 and 2 and future efforts to support GPS IIIF. The OCX Block 3F effort will develop solutions necessary to command, control, and monitor GPS IIIF spacecraft and include advance collection and integration of RMP high-power regional Military Code (M-Code) signals, rapid warfighter effects, and support to GPS IIIF auxiliary payloads (including Search and Rescue (SAR), Nuclear Detonation (NUDET) Detection System (NDS)).

Exhibit R-2A, RDT&E Project Justification: PB 2022 Air Force		Date: May 2021
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 1206423F / *Global Positioning System II I - Operational Control Segment*	**Project (Number/Name)** 67A021 / *OCX*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Title: OCX Development ***Description:*** Development of GPS OCX system to launch GPS III, operate a mixed GPS II and GPS III constellation, and provide for a robust Information Assurance system. ***FY 2021 Plans:*** N/A ***FY 2022 Plans:*** N/A ***FY 2021 to FY 2022 Increase/Decrease Statement:*** N/A	350.283	0.000	0.000
Title: Technical Support ***Description:*** Development of the Standardized Space Trainer (SST) to provide GPS III operator training. Development of Enterprise Mission Planning Systems. Facilities upgrades for Control Stations and associated equipment and servers. Systems Engineering (SE) including Technical Mission Analysis (TMA), Modernization SE and Technical Support, and Test and Evaluation (T&E).	30.059	-	-
Accomplishments/Planned Programs Subtotals	380.342	0.000	0.000

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
• RDTE 07 PE 1203265F: *GPS III Space Segment*	47.178	0.000	0.000	-	0.000	-	-	-	-	-	-
• SPAF 01 GPSIII: *GPS III Space Segment*	34.845	0.000	0.000	-	0.000	-	-	-	-	-	-
• RDTE 05 PE 1203269F: *GPS III Follow-On*	427.210	0.000	0.000	-	0.000	-	-	-	-	-	-
• SPAF 01 GPS03C: *GPSIII Follow On*	389.975	0.000	0.000	-	0.000	-	-	-	-	-	-

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2022 Air Force		Date: May 2021
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 1206423F / *Global Positioning System III - Operational Control Segment*	**Project (Number/Name)** 67A021 / *OCX*

D. Acquisition Strategy

The Air Force is pursuing a "Block" approach for OCX in order to respond to warfighter capability requirements. The strategy calls for capability (e.g., better signal maintainability, Unified S-Band (USB), Search and Rescue (SAR) GPS, and near-real time Command and Control (C2)) on-ramps for the follow-on contract for GPS III Space Vehicles (SVs) (starting no earlier than SV11) which will require updates to the OCX ground segment. Enterprise studies will ensure GPS Enterprise synchronization across space and ground segments. The OCX Block 3F program is structured as a tailored ACAT II program with an award in FY 2021. OCX Block 3F is utilizing an agile software development approach and updates the Block I & II baseline in order to deliver OCX Block 3F requirements.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Air Force		Date: May 2021
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 1206423F / *Global Positioning System II I - Operational Control Segment*	**Project (Number/Name)** 67A021 / *OCX*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
GPS OCX Phase B OCX Block 1 & 2 Development	C/CPAF	Raytheon : Aurora, CO	3,150.818	338.036	Dec 2019	-		-		-		-	-	-	4,413.394
GPS OCX Technical Mission Analysis	MIPR	Various : Various	62.884	13.211	Dec 2019	-		-		-		-	-	-	-
GPS OCX Enterprise SE&I	C/CPAF	TASC : El Segundo, CA	54.932	4.208	Dec 2019	-		-		-		-	-	-	88.187
GPS OCX Modernization/ SE & Technical Support	Various	Various : Various	67.041	3.121	Dec 2019	-		-		-		-	-	-	-
GPS OCX AMCS Facility Dev	Various	Various : Various	2.392	0.068		-		-		-		-	-	-	-
GPS OCX Standard Space Trainer (SST)	C/CPAF	Sonalyst, Inc : Waterford, CT	22.500	5.000	Dec 2019	-		-		-		-	-	-	34.000
GPS OCX Enterprise Mission Planning	C/CPIF	Booz Allen Hamilton Eng Services : El Segundo, CA	22.100	5.800	Jan 2020	-		-		-		-	-	-	33.700
GPS OCX Phase A Development	Various	Various : Various	289.000	-		-		-		-		-	-	-	289.000
		Subtotal	3,671.667	369.444		-		-		-		-	-	-	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
GPS OCX T&E	C/Various	Various : Various	12.493	1.521	Mar 2020	-		-		-		-	-	-	-
		Subtotal	12.493	1.521		-		-		-		-	-	-	N/A

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
GPS OCX FFRDC	MIPR	Various : Various	148.051	4.874	Oct 2019	-		-		-		-	-	-	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Air Force		Date: May 2021
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 1206423F / *Global Positioning System III - Operational Control Segment*	**Project (Number/Name)** 67A021 / *OCX*

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
GPS OCX A&AS	Various	Various : Various	150.282	3.987	Feb 2020	-		-		-		-	-	-	-
GPS OCX Other Support	Various	Various : Various	3.890	0.516	Oct 2019	-		-		-		-	-	-	-
		Subtotal	302.223	9.377		-		-		-		-	-	-	N/A

	Prior Years	FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	3,986.383	380.342		0.000		-		-		-	-	-	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Air Force		Date: May 2021
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 1206423F / *Global Positioning System III - Operational Control Segment*	**Project (Number/Name)** 67A021 / *OCX*

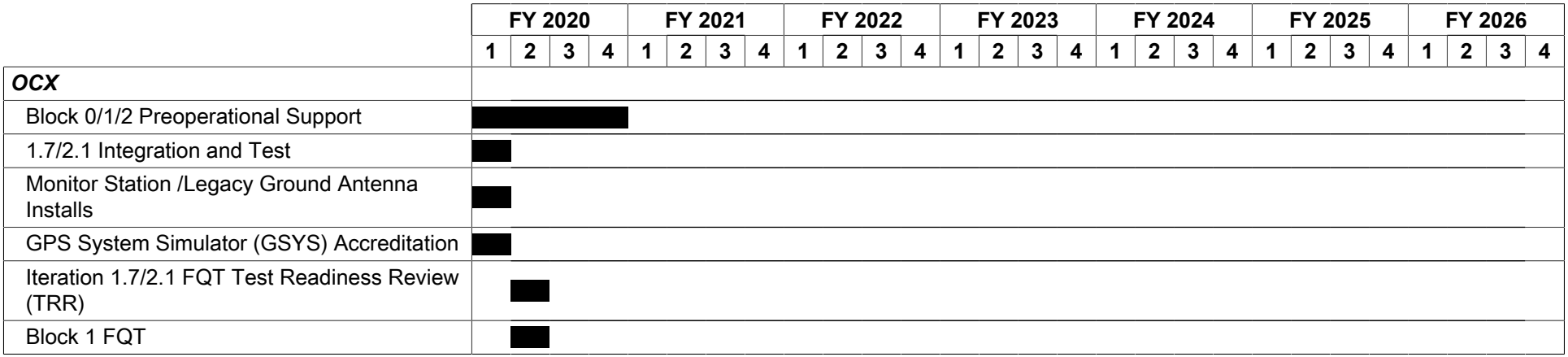

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Air Force		Date: May 2021
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 1206423F / *Global Positioning System III - Operational Control Segment*	**Project (Number/Name)** 67A021 / *OCX*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
OCX				
Block 0/1/2 Preoperational Support	1	2020	4	2020
1.7/2.1 Integration and Test	1	2020	1	2020
Monitor Station /Legacy Ground Antenna Installs	1	2020	1	2020
GPS System Simulator (GSYS) Accreditation	1	2020	1	2020
Iteration 1.7/2.1 FQT Test Readiness Review (TRR)	2	2020	2	2020
Block 1 FQT	2	2020	2	2020

Exhibit R-2A, RDT&E Project Justification: PB 2022 Air Force			Date: May 2021
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 1206423F / *Global Positioning System II I - Operational Control Segment*	Project (Number/Name) 67A025 / *GPS Enterprise Integrator*	

COST ($ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
67A025: *GPS Enterprise Integrator*	519.035	59.218	0.000	0.000	0.000	0.000	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The GPS Program Office established and maintains the technical baseline and is responsible for the successful fielding of all the GPS Segments (space, control, and user). In order to successfully execute these responsibilities, GPS Enterprise Integrator (EI) creates an enterprise architecture, integrates segment products, verifies the enterprise requirements are adequately met, develops and implements various Systems Engineering documents, defines methods of verification, conducts integrated system test and test analysis, develops and manages the Enterprise technical baseline which reflect multiple stakeholder requirements; Stakeholders include the Department of Defense (DoD), foreign governments, industry, and the general public (through four public interface specifications). Furthermore, GPS EI ensures PNT capabilities meet the warfighter's, civil agencies, commercial entities, international treaties, and over four billion global GPS users needs. Moreover, GPS EI is responsible for delivering a reliable PNT signal capability to military operators, the civil user community, and international partners. In addition, GPS EI validates the system performance in various mission threat scenarios during its development as well as provides in-depth technical expertise to enhance government control, oversight and program accountability. GPS EI is also responsible for all aspects of schedule and technical alignment across the GPS segments (space, control, and user).

More specifically, GPS EI is responsible for technical baseline management, integration, synchronizing, testing, and verifying GPS III, GPS IIIF, Operational Control System (OCS), OCX, Military Global Positioning System User Equipment (MGUE) Increment 1 and Increment 2, and other PNT investment projects. Additionally, GPS EI is responsible for creating and managing plans that provide early exercise of the products under development, compatibility analysis, and inter-segment testing. The inter-segment tests are required to prove OCX interoperability with GPS III satellites and Modernized User Equipment. More importantly, it ensures backwards compatibility with legacy systems such as, GPS Block II satellites, OCS and legacy user equipment. The GPS EI also manages the process through which the JROC validated requirements are matured and flowed down to the system segments, while remaining consistent with various interfaces. This enables the GPS system to meet Title 10 of the USC, Sec 2281, mandated PNT capabilities, and various other obligations to the international community that provide inter-operable PNT signals.

GPS EI also supports GPS spectrum protection at international forums such as the International Telecommunications Union. Such support consists of advocating on behalf of the United States (U.S.) Government when negotiating with foreign partners. In addition, GPS EI provides technical expertise to maintain relationships with other U.S. government agencies that include the Federal Aviation Administration (FAA), National Geospatial-Intelligence Agency (NGA), National Aeronautics and Space Administration (NASA) and Departments of State (DOS), Transportation (DoT), Homeland Security (DHS), and Commerce (DOC). GPS EI Spectrum also ensures GPS priority for eight essential spectrum signals, including those required for civil air navigation and safety of life. Spectrum Protection prevents encroachment from commercial or foreign entities, which results in the preservation of warfighter's reliable signal. As a result, military operations and the integrity of the global economic infrastructure are protected.

Exhibit R-2A, RDT&E Project Justification: PB 2022 Air Force		Date: May 2021
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 1206423F / *Global Positioning System III - Operational Control Segment*	**Project (Number/Name)** 67A025 / *GPS Enterprise Integrator*

GPS EI also manages GPS and other navigation system performance monitoring and publishes performance specifications and reports to ensure anomalies with GPS can be resolved. In addition GPS EI provides technical expertise for the development for GPS program technical baselines and public specifications to make certain that the Department of Defense (DOD) fulfills its commitment to the world for civilian GPS Service.

GPS EI also provides the PNT enterprise expertise in System Safety, Enterprise level System Security Engineering covering Acquisition Systems Program Security (i.e., personnel, industrial, operations, information, sensitive compartmented information, communication, and physical), Program Protection, Foreign Disclosure, Public Release reviews, Mission System Certification and Accreditation, and Enterprise Cybersecurity. GPS EI is accountable for the development, execution, and analysis of the PNT Enterprise Segments, cybersecurity, and associated test cases necessary to deliver a secure operational system.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Title: GPS Enterprise Integrator	59.218	-	-
Description: The integration and technical baseline control of all elements of the GPS system (space/control/user) in support of both military and civil users. Test and verification of integrated system performance in preparation for operational test and evaluation.			
Accomplishments/Planned Programs Subtotals	59.218	-	-

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
• RDTE 04 PE 1203164F: *NAVSTAR Global Positioning System (User Equipment) (Space)*	308.215	-	-	-	-	-	-	-	-	-	-
• RDTE 07 PE 1203265F: *GPS III Space Segment*	47.178	-	-	-	-	-	-	-	-	-	-
• RDTE 05 PE 1203269F: *GPS III Follow-On*	427.210	-	-	-	-	-	-	-	-	-	-
• RDTE 07 PE 1203913F: *NUDET Detection System*	49.300	-	-	-	-	-	-	-	-	-	-
• SPAF 01 Line Item GPSIII: *GPS III Space Segment*	34.845	-	-	-	-	-	-	-	-	-	-
• SPAF 01 GPS IIIF SPAF: *GPS IIIF SPAF*	389.975	-	-	-	-	-	-	-	-	-	-

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2022 Air Force		Date: May 2021
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 1206423F / *Global Positioning System III - Operational Control Segment*	**Project (Number/Name)** 67A025 / *GPS Enterprise Integrator*

D. Acquisition Strategy

In accordance with a "back to basics" acquisition approach the Air Force is required to exercise complete ownership of the architecture, system definition, technical baseline, and integration of the GPS space, ground, and user segments. This complex inter-segment integration requires the government to be the integrator. To execute this responsibility, the government leverages systems engineering and integration expertise from both Federally Funded Research and Development Center (FFRDC) contractors and a Systems Engineering & Integration (SE&I) contractor. The GPS EI function of the SE&I contractor is currently funded within this PE. The SE&I effort was awarded in 2015 through a full and open competition with strategy built in year over year cost reductions as requirements stabilize. A SE&I follow-on is planned for award in the 4th Quarter of FY 2021. In FY 2023, the GPS EI effort will transition from PE 1206423SF to PE 1203269SF, Appn 3620.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Air Force		Date: May 2021
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 1206423F / *Global Positioning System II I - Operational Control Segment*	**Project (Number/Name)** 67A025 / *GPS Enterprise Integrator*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
GPS EI Enterprise SE&I	C/CPAF	TASC : El Segundo, CA	234.203	22.959	Dec 2019	-		-		-		-	-	-	309.213
GPS EI Technical Mission Analysis 1	MIPR	Aerospace : El Segundo, CA	106.012	9.794	Dec 2019	-		-		-		-	-	-	-
GPS EI Technical Mission Analysis 2	Various	MITRE : Various	104.884	11.500	Nov 2019	-		-		-		-	-	-	-
GPS EI MRTA/MSTA	C/CPIF	Draper Labs : Cambridge, MA	14.022	3.400	Dec 2019	-		-		-		-	-	-	25.641
GPS EI Enterprise Mission Planning	C/CPFF	Various : El Segundo, CA	1.320	-		-		-		-		-	-	-	-
GPS EI Cybersecurity	Various	Various : El Segundo, CA	25.485	6.985	Dec 2019	-		-		-		-	-	-	-
GPS EI Additonal Product Development	Various	Various : Various	6.777	2.176	Dec 2019	-		-		-		-	-	-	-
		Subtotal	492.703	56.814		-		-		-		-	-	-	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
EI Integrated System Test	Various	Various : El Segundo, CA	0.294	-		-		-		-		-	-	-	-
		Subtotal	0.294	-		-		-		-		-	-	-	N/A

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
GPS EI FFRDC	Various	Various : El Segundo, CA	1.748	1.265	Dec 2019	-		-		-		-	-	-	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Air Force		Date: May 2021
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 1206423F / *Global Positioning System III - Operational Control Segment*	**Project (Number/Name)** 67A025 / *GPS Enterprise Integrator*

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
GPS EI A&AS	Various	Various : El Segundo, CA	22.319	0.810	Dec 2019	-		-		-		-	-	-	-
GPS EI Other Support	Various	Various : Various	1.971	0.329	Oct 2019	-		-		-		-	-	-	-
		Subtotal	26.038	2.404		-		-		-		-	-	-	N/A

	Prior Years	FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	519.035	59.218		0.000		-		-		-	-	-	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Air Force		Date: May 2021
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 1206423F / *Global Positioning System III - Operational Control Segment*	**Project (Number/Name)** 67A025 / *GPS Enterprise Integrator*

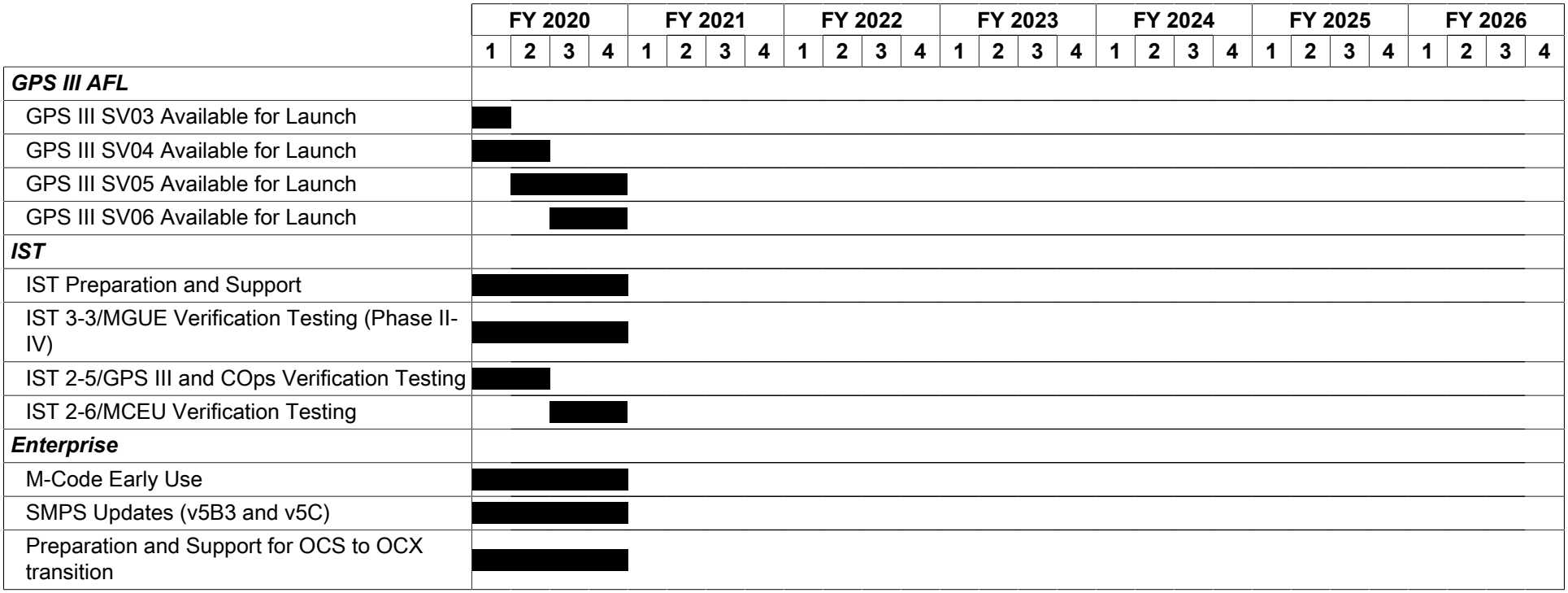

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Air Force		Date: May 2021
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 1206423F / *Global Positioning System III - Operational Control Segment*	**Project (Number/Name)** 67A025 / *GPS Enterprise Integrator*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
GPS III AFL				
GPS III SV03 Available for Launch	1	2020	1	2020
GPS III SV04 Available for Launch	1	2020	2	2020
GPS III SV05 Available for Launch	2	2020	4	2020
GPS III SV06 Available for Launch	3	2020	4	2020
IST				
IST Preparation and Support	1	2020	4	2020
IST 3-3/MGUE Verification Testing (Phase II-IV)	1	2020	4	2020
IST 2-5/GPS III and COps Verification Testing	1	2020	2	2020
IST 2-6/MCEU Verification Testing	3	2020	4	2020
Enterprise				
M-Code Early Use	1	2020	4	2020
SMPS Updates (v5B3 and v5C)	1	2020	4	2020
Preparation and Support for OCS to OCX transition	1	2020	4	2020