

CLEARED
For Open Publication

By kempr on Apr 11, 2022

Department of Defense
OFFICE OF PREPUBLICATION AND SECURITY REVIEW

GLOBAL POSITIONING SYSTEM III FOLLOW-ON PRODUCTION (GPS IIIF)

Selected Acquisition Report (SAR)



AS OF THE FY 2023 PRESIDENT'S BUDGET
U.S. AIR FORCE

Contents

Program Manager	3
Mission and Description	3
Executive Summary.....	5
Program Highlights Since Last Report.....	5
History of Significant Developments Since Program Initiation.....	5
Schedule.....	7
Schedule Events	7
Schedule Notes	7
Significant Schedule Risks	7
Performance	8
Requirements Source.....	12
Acquisition Budget Estimate.....	13
Total Acquisition Cost	13
Total End Item Quantity.....	13
Budget Notes	13
Risks and Sensitivity Analysis	15
Unit Cost.....	16
Current Baseline Compared with Current Estimate	16
Original Baseline Compared with Current Estimate	16
Contracts.....	17
Contract Notes	17
Technologies and Systems Engineering.....	18
Significant Technical Risks.....	18
Deliveries and Expenditures	19
Deliveries.....	19
Expended and Appropriated (TY\$).....	19
Low Rate Initial Production.....	19
Operating and Support Costs.....	20

Total Program O&S Cost Compared with Baseline 20

O&S Cost Breakdown 20

O&S Cost Notes 20

Program Manager

Name: Col. Edward Byrne

Date Assigned: May 1, 2019

Address: 483 N. Aviation Blvd

El Segundo, CA 90245

Phone: 310-653-3211

Mission and Description

The Global Positioning System (GPS) is a satellite-based radio navigation system that provides worldwide military and civil users satellite signals that they can process to determine accurate position, velocity, and time. GPS III Follow-On (GPS IIIF) is an Acquisition Category IB program that, in concert with the GPS III program, comprises the next generation of space vehicles (SVs) that provide significant enhancements to modernize the constellation originally delivered under the Navstar GPS program. GPS IIIF, will deliver GPS III satellites beyond the first ten SVs being delivered by the GPS III program.

The primary GPS IIIF missions are worldwide positioning, navigation, and precise time transfer. GPS provides strategic and tactical support to the following Department of Defense (DoD) missions: Joint Operations by providing capabilities for Position, Navigation and Timing (PNT); Command, Control, Communications, and Intelligence; Special Operations; Military Operations in Urban Terrain; Defense-Wide Mission Support; Air Mobility; and Space Launch Orbital Support.

The GPS IIIF satellites will maintain the same capabilities as the GPS III satellites, but will also deliver significant enhancements to include: Regional Military Protection capabilities that provide the ability to deliver high-power regional Military-Code (M-Code) signals in specific areas of intended effect, Unified S-Band interface compliance, and integration of hosted payloads (redesigned Nuclear Detonation Detection System, Laser Retro-reflector Arrays, Search and Rescue/GPS, Energetic Charged Particles sensor). Consistent with the GPS III programs support for military users, the GPS IIIF program provides Precise Positioning Service (PPS) to military operations and force enhancement. It also provides increased anti-jam power to the earth coverage Military code signals and anti-exploitation techniques in order to prevent unauthorized use of the GPS PPS signal. In addition, the program will support the U.S. Nuclear Detonation Detection System mission for worldwide monitoring and detection of nuclear events, as well as the international Cospas-Sarsat Search and Rescue mission for detection and location of emergency beacons, both via a hosted payloads.

The GPS IIIF program provides a Standard Positioning Service to a broad spectrum of civil users which will include the four civil signals (L1 C/A, L1C, L2C, and L5) flown on GPS III satellites. The L1C signal is compatible with the European Galileo satellite navigation system signal, E1. L1C is also compatible with those signals planned for broadcast on Japan's Quazi-Zenith Satellite System, a system meant to augment GPS services. This common civil signal will be jointly broadcast by up to 60 satellites from both GPS and Galileo constellations, further increasing the accuracy and availability of user PNT solutions. The program also benefits the civil community by hosting laser retroreflectors, used to refine the International Terrestrial Reference Frame, and particle sensors, used for space-based environmental monitoring.

The GPS IIIIF SVs build upon the GPS III program's approach to rapidly and affordably respond to warfighter capability requirements. The GPS IIIIF program will also execute Space Modernization Initiative efforts that focus on space vehicle affordability, capability, and addresses future requirements and resiliency needs. The Air Force is using its research laboratories to mature mission related capabilities, technologies (advanced clocks, amplifiers, crosslinks, etc.), and inform future PNT architectures.

Executive Summary

Program Highlights Since Last Report

Significant Accomplishments:

The GPS IIIF program is stable and funding is adequate to meet cost, schedule, and performance objectives, with no increased risks to the program since the last SAR.

The GPS IIIF program completed Critical Design Review on March 2, 2020 and the Milestone Decision Authority (MDA) approved a Milestone C production decision with an ADM signed on July 13, 2020. As part of the certification, the MDA signed an updated Acquisition Program Baseline (APB) on July 14, 2020 and the Milestone C Brief Summary Report (2366c) was sent to Congress on August 5, 2020.

GPS IIIF SV 11 and SV12 are in development and proceeding as planned. SV13 and SV14 were purchased as a combined buy on October 7, 2020. SV15, SV16, and SV17 were purchased as a combined Alternate Buy Strategy on October 22, 2021. The Alternate Buy Plan was implemented to capture savings by utilizing economies of scale in procuring SV13 together with SV14, rather than individually, as well as SV15-17 together. The Alternate Buy Plan is consistent with existing APB milestones and planned on-orbit deliveries of the satellites.

The GPS IIIF program received a \$260M Congressional add in the conferenced Department of Defense Appropriations Act for FY 2022 for the advanced purchase of a third SV. The program plans to award the additional SV in October 2022, in conjunction with the vehicles planned in FY 2023, for a 3-satellite buy. The program is limited to one buy option per fiscal year to purchase vehicles, and already bought SVs 15-17 in October 2021.

The program also received an \$18M Congressional mark in RDT&E funding. This funding is required to complete baseline program activities. While the program is looking for mitigations, the funds reduction drives a 6-week slowdown.

Of the SV's with APB milestones (11, 12, 13, 16), all are currently scheduled to deliver two years prior to their APB thresholds.

There are no significant software-related issues with this program at this time.

History of Significant Developments Since Program Initiation

History of Significant Developments Since Program Initiation	
Date	Significant Development Description
March 2018	GPS IIIF Capability Development Document (CDD) approved.
August 2018	GPS IIIF Service Cost Position (SCP) approved.
September 2018	The GPS IIIF program obtained Milestone B certification and APB approval on September 12, 2018.
September 2018	GPS IIIF awarded a competitively-procured contract on September 26, 2018 to Lockheed Martin Space. The Fixed Price Incentive/Award Fee contract includes non-recurring engineering, satellite simulators, and SV 11-12.
March 2019	The program completed the initial Integrated Baseline Review for the scope awarded in September 2018.
March 2019	GPS IIIF initiated the Critical Design Review (CDR) campaign for the baseline technical design.
November 2019	Successfully held the Navigation Payload Element CDR.

March 2020	GPS IIIF CDR completed.
July 2020	GPS IIIF Milestone C certification and updated APB approval.
October 2020	Contract modified to add SV 13 and 14 procurement.
August 2021	Enterprise Test and Evaluation Master Plan Revision C received OSD Director, Operational Test and Evaluation approval.
October 2021	Contract modified to add Procurement SVs 15, 16, and 17.

Schedule

Schedule Events

Schedule Events					
Events	Initial Development APB Objective	Current APB Development Objective/Threshold		Current Estimate	Deviations
GPS IIIF Milestone B	Jul 2018	Sep 2018	Sep 2018	September 12, 2018	
GPS IIIF Critical Design Review	Sep 2020	Mar 2020	Mar 2020	March 2, 2020	
GPS IIIF Milestone C	Dec 2020	Dec 2020	Jun 2021	July 14, 2020	
GPS IIIF SV11 AFL	Jan 2028	Jan 2028	Jul 2028	Feb 2026	
GPS IIIF SV12 AFL	Oct 2028	Oct 2028	Apr 2029	Aug 2026	
GPS IIIF SV13 AFL	N/A	Oct 2029	Apr 2030	Oct 2026	
GPS IIIF SV16 AFL	N/A	Oct 2030	Apr 2031	Feb 2028	
GPS IIIF SV22 AFL	N/A	Oct 2032	Apr 2033	Oct 2032	

Schedule Notes

The following schedule events were added with approval of the July 14, 2020 APB: GPS IIIF SV13 Available for Launch (AFL), GPS IIIF SV16 AFL, and GPS IIIF SV22 AFL.

Significant Schedule Risks

Significant Schedule Risks	
Milestone B (September 2018)	
1.	Constellation Performance: Congress, DoD, and/or Air Force currently does not fund GPS Directorate to acquire 2-3 Space Vehicles per year due to funding constraints, thus putting at risk constellation sustainment and performance.
2.	Design Not Mature: GPS III Follow-On Production designs may not be sufficiently mature due to requirements changes driving expanded non-recurring engineering effort to establish the production line.
3.	Space Modular Common Crypto: May not meet GPS IIIF operating environment requirements.
Current Estimate (December 2021)	
1.	There are no risks with this program at this time.

Performance

Performance Characteristics					
Development APB Objectives	Current APB Production Objective/Threshold		Demonstrated Performance	Current Estimate	Deviation
Backward Compatibility					
All modifications made to the existing GPS Space Segment and Control Segment shall allow continued operation of existing ICD-GPS-200 and 700, ICD-GPS-800, IS-GPS-705, and SS-GPS-001 compliant UE and continued operation of legacy receivers (to include Federal augmentation system receivers).	N/A	N/A	TBD	N/A	
User Range Error (meters)					
.2	N/A	N/A	TBD	N/A	
Position and Time Transfer Integrity					
.0001	N/A	N/A	TBD	N/A	
Satellite Availability					
0.984	N/A	N/A	TBD	N/A	
Sustainment (Operational) Availability 5.1.4.1					
Achievement of the Availability of Position Accuracy KPP and Time Transfer Accuracy KPP thresholds satisfies this KPP	N/A	N/A	TBD	N/A	
Sustainment (Materiel) Availability 5.1.4.2					
Achievement of the Availability of Position Accuracy KPP and Time Transfer Accuracy KPP thresholds satisfies this KPP	N/A	N/A	TBD	N/A	
Regional Military Protection					
Each GPS III Follow-On satellite shall provide a -140 dBW (measured at a	N/A	N/A	TBD	N/A	

Performance Characteristics					
Development APB Objectives	Current APB Production Objective/Threshold		Demonstrated Performance	Current Estimate	Deviation
5-degree minimum user elevation mask angle) regional high-power M-Code signal on both L1 and L2					
System Survivability (5.1.2)					
The System Survivability KPP is satisfied by meeting the thresholds of the Availability of Position Accuracy KPP (SS and CS; Position and Time Transfer Integrity KPP (SS and CS)); System Survivability System Survivability KPP and associated CSA (SS and CS)	The System Survivability KPP is satisfied by meeting the thresholds of the Availability of Position Accuracy KPP; Position and Time Transfer Integrity KPP; Availability of Time Transfer Accuracy KPP; System Survivability System KPP and associated Cyber Survivability Attributes	(T=O) The System Survivability KPP is satisfied by meeting the thresholds of the Availability of Position Accuracy KPP; Position and Time Transfer Integrity KPP; Availability of Time Transfer Accuracy KPP; System Survivability System KPP and associated Cyber Survivability Attributes	TBD	The System Survivability KPP is satisfied by meeting the thresholds of the Availability of Position Accuracy KPP (SS and CS; Position and Time Transfer Integrity KPP (SS and CS)); System Survivability System Survivability KPP and associated CSA (SS and CS)	
Sustainment Operational Availability (5.1.4.1)					
N/A	Achievement of the Availability of Position Accuracy KPP and Time Transfer Accuracy KPP thresholds satisfies this KPP	(T=O) Achievement of the Availability of Position Accuracy KPP and Time Transfer Accuracy KPP thresholds satisfies this KPP	TBD	Achievement of the Availability of Position Accuracy KPP and Time Transfer Accuracy KPP thresholds satisfies this KPP	
Sustainment Materiel Availability (5.1.4.2)					
N/A	Achievement of the Availability of	(T=O) Achievement of the Availability of	TBD	Achievement of the Availability of Position Accuracy KPP and Time	

Performance Characteristics					
Development APB Objectives	Current APB Production Objective/Threshold		Demonstrated Performance	Current Estimate	Deviation
	Position Accuracy KPP and Time Transfer Accuracy KPP thresholds satisfies this KPP	Position Accuracy KPP and Time Transfer Accuracy KPP thresholds satisfies this KPP		Transfer Accuracy KPP thresholds satisfies this KPP	
Backward Compatibility (5.2.1)					
N/A	All modifications made to the existing GPS Space Segment and Control Segment shall allow continued operation of existing IS-GPS-200, IS-GPS-700, IS-GPS-705, IS-GPS-800, and SS-GPS-001 compliant UE and continued operation of legacy receivers (to include Federal augmentation system receivers) IAW performance meeting the Acquisition Program Baseline, Precise Positioning Service Performance Standard and GPS Standard Positioning Service Performance Standard, and Federal augmentation system specifications for the Local Area Augmentation System, Wide Area Augmentation System, Nationwide Differential GPS, and Maritime Differential GPS	(T=0) All modifications made to the existing GPS Space Segment and Control Segment shall allow continued operation of existing IS-GPS-200, IS-GPS-700, IS-GPS-705, IS-GPS-800, and SS-GPS-001 compliant UE and continued operation of legacy receivers (to include Federal augmentation system receivers) IAW performance meeting the Acquisition Program Baseline, Precise Positioning Service Performance Standard and GPS Standard Positioning Service Performance Standard, and Federal augmentation	TBD	All modifications made to the existing GPS Space Segment and Control Segment shall allow continued operation of existing IS-GPS-200, IS-GPS-700, IS-GPS-705, IS-GPS-800, and SS-GPS-001 compliant UE and continued operation of legacy receivers (to include Federal augmentation system receivers) IAW performance meeting the Acquisition Program Baseline, Precise Positioning Service Performance Standard and GPS Standard Positioning Service Performance Standard, and Federal augmentation system specifications for the Local Area Augmentation System, Wide Area Augmentation System, Nationwide Differential GPS, and Maritime Differential GPS	

Performance Characteristics					
Development APB Objectives	Current APB Production Objective/Threshold		Demonstrated Performance	Current Estimate	Deviation
	Standard and GPS Standard Positioning Service Performance Standard, and Federal augmentation system specifications for the Local Area Augmentation System, Wide Area Augmentation System, Nationwide Differential GPS, and Maritime Differential GPS	system specifications for the Local Area Augmentation System, Wide Area Augmentation System, Nationwide Differential GPS, and Maritime Differential GPS			
Availability of Position Accuracy (5.2.2)					
N/A	The GPS III Follow-on SVs and Control Segment shall provide Availability of Accuracy in the terrestrial service volume with UE as described in Section 5 [of the GPS IIIF CDD]	(T=O) The GPS III Follow-on SVs and Control Segment shall provide Availability of Accuracy in the terrestrial service volume with UE as described in Section 5 [of the GPS IIIF CDD]	TBD	The GPS III Follow-on SVs and Control Segment shall provide Availability of Accuracy in the terrestrial service volume with UE as described in Section 5 [of the GPS IIIF CDD]	
Regional Military Protection (5.2.3)					
N/A	Each GPS III Follow-On satellite shall provide a -140 dBW (measured at a 5-degree	(T=O) Each GPS III Follow-On satellite shall provide a -140 dBW (measured at a 5-degree minimum user	TBD	Each GPS III Follow-On satellite shall provide a -140 dBW (measured at a 5-degree minimum user elevation mask angle) regional high-power	

Performance Characteristics					
Development APB Objectives	Current APB Production Objective/Threshold		Demonstrated Performance	Current Estimate	Deviation
	minimum user elevation mask angle) regional high-power M-Code signal on both L1 and L2	elevation mask angle) regional high-power M-Code signal on both L1 and L2		M-Code signal on both L1 and L2	
Position and Time Transfer Integrity (5.2.4)					
N/A	The GPS III Follow-on satellite shall not transmit MSI to the user with a probability greater than 0.0001 per hour	(T=O) The GPS III Follow-on satellite shall not transmit MSI to the user with a probability greater than 0.0001 per hour	TBD	The GPS III Follow-on satellite shall not transmit MSI to the user with a probability greater than 0.0001 per hour	
Availability of Time Transfer Accuracy (5.2.5)					
N/A	The GPS III Follow-on satellites and Control Segment shall provide Availability of Dynamic and Static Time Transfer Accuracy with UE described in Section 5 [of the GPS IIIIF CDD].	(T=O) The GPS III Follow-on satellites and Control Segment shall provide Availability of Dynamic and Static Time Transfer Accuracy with UE described in Section 5 [of the GPS IIIIF CDD].	TBD	The GPS III Follow-on satellites and Control Segment shall provide Availability of Dynamic and Static Time Transfer Accuracy with UE described in Section 5 [of the GPS IIIIF CDD].	
Satellite Availability					
N/A	0.984	(T=O) 0.984	TBD	0.984	
User Range Error (meters)					
N/A	.2	1.1	TBD	.2	

Requirements Source

GPS IIIIF CDD dated March 20, 2018, GPS III CDD dated February 7, 2011

Acquisition Budget Estimate

Total Acquisition Cost

Category	Base Year	Development APB	APB Name Production 07/14/2020		Budget Estimate PB 2023		
		Objective (BY\$)	Objective (BY\$)	Threshold (BY\$)	BY\$	TY\$	Deviation
RDT&E	2020	3285.3	3175.6	3493.2	3222.9	3582.9	
Procurement	2020	6353.7	6214.0	6835.4	6428.5	7696.7	
MILCON							
Acq. O&M							
Total	2020	9639.0	9389.6	N/A	9651.4	11279.5	
PAUC	2020	438.555	426.800	469.480	438.700		
APUC		317.990	310.700	341.770	321.425		

Total End Item Quantity

Quantity Category	Current APB Quantity	Current Estimate Quantity
Development	2	2
Procurement	20	20
Total	22	22

Budget Notes

The unit cost is artificially inflated due to Congressional add of \$260M for advanced purchase of a third SV in FY 2023. The new buy profile will be reflected in the next cost estimate and will adjust to accurately reflect unit cost.

Increase in FY 2008 - 2014 RDT&E are a result of recalculating actuals to be program obligations vs outlays.

Increase in FY 2026 - 2027 RDT&E and Procurement were a reflection of updated service cost estimates and inflation adjustments.

Increase in FY 2028 - FY 2035 RDT&E and Procurement were a reflection of the latest Program Office Estimate. The Procurement increase is primarily driven by a change in quantity phasing.

Decrease in FY 2019 RDT&E due to Reprogramming of funds for other Air Force priorities.

Decrease in FY 2020 RDT&E reduction due to Small Business Innovative Research and reprogramming to other Air Force priorities.

Net increase in FY 2021 RDT&E due to Congressional add for Navigation Technology Satellite-3 prototype, Congressional reduction and reprogramming for other Air Force priorities.

Decrease in FY 2022 RDT&E due to other Air Force priorities.

Decrease in FY 2020 Procurement due to reprogramming for other Air Force priorities.

Decrease in FY 2021 Procurement due to a Congressional reduction and reprogramming for other Air Force priorities.

Increase in FY 2022 Procurement due to a Congressional add for advanced purchase of third SV in FY 2023.

Risks and Sensitivity Analysis

Risks and Sensitivity Analysis	
Current Baseline Estimate (July 2020)	
1.	Total Acquisition Cost - \$9,389.6M (BY 2020) (Quantity 22) PAUC - \$426.800M (Quantity 22); APUC - \$310.700M (Quantity 20). SCP was conducted at contract ceiling price; Non-Recurring Engineering (NRE) SV11-12 and simulators are Fixed Price Incentive Fee/Award Fee (FPIF/AF), SV13-32 are FPIF. This approach is intended to control cost in a manner consistent with the relative maturity of the requirements and technical baseline, production designs, and their associated execution risk.
Original Baseline Estimate (September 2018)	
1.	Total Acquisition Cost - \$9,273.8M (BY 2018) (Quantity 22) PAUC - \$421.536M (Quantity 22); APUC - \$305.65M (Quantity 20). SCP conducted at contract ceiling price; NRE SV11-12 and simulators are FPIF/AF, SV13-32 are FPIF. This approach is intended to control cost in a manner consistent with the relative maturity of the requirements and technical baseline, production designs, and their associated execution risk.
Revised Original Estimate (N/A)	
None	
Current Procurement Cost (December 2021)	
1.	Total Acquisition Cost - \$9,651.4M (BY 2020) (Quantity 22) PAUC - \$438.700M (Quantity 22); APUC - \$321.425M (Quantity 20). Current estimates and funding profile are based upon the latest service cost estimate. NRE SV11-12 and simulators are FPIF/AF, SV13-32 are FPIF. No issues at this time.

Unit Cost

Current Baseline Compared with Current Estimate

Category (\$M)	Current APB	Current Estimate	% Change	NMC Breach
PAUC				
Cost	9389.6	9651.4	+2.79	
Quantity	22	22		
Unit Cost	426.800	438.700	+2.79	
APUC				
Cost	6214.0	6428.5	+3.45	
Quantity	20	20		
Unit Cost	310.700	321.425	+3.45	

Original Baseline Compared with Current Estimate

Category (\$M)	Original APB	Current Estimate	% Change	NMC Breach
PAUC				
Cost	9648.2	9651.4	+0.03	
Quantity	22	22		
Unit Cost	438.555	438.700	+0.03	
APUC				
Cost	6359.8	6428.5	+1.08	
Quantity	20	20		
Unit Cost	317.990	321.425	+1.08	

Contracts

Contract Data (TY \$M)		
Contract Number	FA8807-18-C-0009	
Effort Number	5	
Modification Number	P00083	
Contract Type	FPIF	
Award Date	9/26/2018	
Definitization Date	9/25/2018	
Order Number		
CAGE Code/CAGE Legal Name	04236/Lockheed Martin Corporation	
Contract Title	GPS IIIF	
Contract Address	12257 S Wadsworth Blvd, Littleton, CO 80125-8504	
Contracts/Effort Price, Quantity, and Performance (TY \$M)		
Initial Target Price	Current Target Price	
1362.1	2705.9	
Initial Ceiling Price	Current Ceiling Price	
1499.7	3057.1	
Contract's EAC	PM's EAC 2534.2	
2469.0		
Initial Quantity	Current Quantity	Delivered Quantity
2	7	0
BAC	BCWP	ACWP
2265.7	787.1	845.1
BCWS	Cost Variance	Schedule Variance
826.7	-58.0	-39.6

Contract Notes

Data current as of the January 2022 Integrated Program Management Report.

The Current Target Price is \$2,705.9M and is significantly higher than the Initial Target Price due to the exercise of SV Options 13-17. Seven SVs were exercised in total (2 RDT&E, 5 Production). SV 13-14 were exercised in October 2020. SVs15-17 were exercised in October 2021.

Cost Variance:

The unfavorable Cost Variance in the 2019 SAR was -\$1.2M and has degraded to -\$58.0M in the 2021 SAR. The primary driver for this degradation was driven by engineering design complexities in Support Equipment. Other major factors included additional support to qualify the GPS Non-Flight Testbed Solar Substrates and Regional Military Protection Antenna.

Schedule Variance:

The unfavorable Schedule Variance in the 2019 SAR was -\$20.5M and has degraded to -\$40.0M in the 2021 SAR. The reason for the nominal degradation was due to parts procurement delays of the Linear Traveling Wave Tube Amplifiers and manufacturing issues related to the Evolved Bus Design.

Technologies and Systems Engineering

Significant Technical Risks

Significant Schedule Risks	
Milestone B (September 2018)	
1.	Constellation Performance: Congress, DoD, and/or Air Force currently does not fund GPS Directorate to acquire 2-3 SVs per year due to funding constraints, thus putting at risk constellation sustainment and performance.
2.	Design Not Mature: GPS III Follow-On Production designs may not be sufficiently mature due to requirements changes driving expanded non-recurring engineering effort to establish the production line.
3.	Space Modular Common Crypto: May not meet GPS III F operating environment requirements.
Current Estimate (December 2021)	
1.	Launch & Checkout Capability (LCC) Giver-Receiver: Potential disconnects in delivery dates for Government Furnished items may delay LCC readiness for integrated system testing and the Mission Readiness Campaign.
2.	Performance Test Risk: New payloads and capabilities may result in unforeseen anomalies during testing.
3.	National Security Agency (NSA) Certification: New NSA certification requirements may expand the Information Security boundary, which could drive schedule delays for Information Assurance milestones.

Deliveries and Expenditures

Deliveries

Deliveries				
Delivered to Date	Planned to Date	Actual to Date	Total Quantity	Percent Delivered
Development	0	0	2	0.00%
Production	0	0	20	0.00%
Total Program Quantity Delivered	0	0	22	0.00%

Expended and Appropriated (TY\$)

Total Acquisition Cost: 11279.5

Expended to Date: 1420.2

Percent Expended: 12.59%

Total Funding Years: 27

Years Appropriated: 15

Percent Years Appropriated: 55.55%

Appropriated to Date: 2233.2

Percent Appropriated: 19.80%

Low Rate Initial Production

There is no LRIP for this program.

Operating and Support Costs

Total Program O&S Cost Compared with Baseline

Item	Total O&S Costs \$M			
	Current APB Objective	Current APB Threshold	Current Estimate	Deviation
Base Year	765.0	841.5	762.5	

O&S Cost Breakdown

Category (BY\$ Million)	GPS IIIF System
Unit-Level Manpower	0
Unit Operations	0
Maintenance	350.56
Sustaining Support	44.66
Continued System Improvements	187.04
Other	180.20
Total O&S	762.46

O&S Cost Notes

Other is defined as O&S cost FY 2024 through FY 2035 (GPS IIRM, GPS III and GPS IIIF).

The GPS IIIF system will consist of the Operational Support System (OSS), the GPS IIIF Simulators (GSS+1 and GSS+2), and the GPS IIIF Software Sustainment Labs.

This effort is for on-site organizational engineering and related activities necessary to support GPS IIIF on-orbit operations. Contractor is co-located with 2nd space Operations Squadron personnel at Schriever Air Force Base. Efforts include maintaining engineering liaison support and documenting and reporting on anomalies and resolutions. Other activities include updating command plans and updating the Orbital Operations Handbook as needed and after resolution of on-orbit problems to assure integrity of continuing SV operations. Maintain Satellite Unique Software, perform hardware and software maintenance of OSS and provision for operating the OSS. Provide continuing support to the Operational Control Segment to ensure compatibility with the GPS IIIF SV. Ensure continuing Space/Control Segment (SS/CS) interface compliance, via review, analysis, implementation, test and documentation of technical changes and incompatibilities, as applicable. Ensure the SS/CS interface is adequately documented by supporting the GPS Directorate for all GPS IIIF related documents. Ensure command procedures and data bases are up-to-date/maintained to support on-orbit operations. Perform reliability and mean mission duration analysis, SV performance trending, anomaly resolution, documentation updates, delta V planning, SV reprogramming, end-of-life testing, and disposal. Perform hardware obsolescence analysis and replacement of OSS equipment as required. This requirement also includes maintaining and operating the GPS IIIF satellite simulator for ground control software change validation and compatibility testing.

The scope of the GPS IIIF O&S estimate includes GPS IIIF On-Orbit Support (OOS) costs (FY 2024-FY 2049, FY 2024-FY 2034 are IIIF costs not included in the Next Generation Operational Control System (OCX) SCP). The following costs are included after the end of the OCX SCP Period of performance: IIR-M OOS costs (FY 2034-FY 2035 for end of life) and GPS III OOS costs (FY 2034-FY 2049).