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## Selected Acquisition Report (SAR)

RCS: DD-A&T(Q&A)823-292



### Global Positioning System III (GPS III)

As of FY 2019 President's Budget

Defense Acquisition Management  
Information Retrieval  
(DAMIR)

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## **Sensitivity Originator**

No originator info Available at this time.

## Common Acronyms and Abbreviations for MDAP Programs

Acq O&M - Acquisition-Related Operations and Maintenance  
ACAT - Acquisition Category  
ADM - Acquisition Decision Memorandum  
APB - Acquisition Program Baseline  
APPN - Appropriation  
APUC - Average Procurement Unit Cost  
\$B - Billions of Dollars  
BA - Budget Authority/Budget Activity  
Blk - Block  
BY - Base Year  
CAPE - Cost Assessment and Program Evaluation  
CARD - Cost Analysis Requirements Description  
CDD - Capability Development Document  
CLIN - Contract Line Item Number  
CPD - Capability Production Document  
CY - Calendar Year  
DAB - Defense Acquisition Board  
DAE - Defense Acquisition Executive  
DAMIR - Defense Acquisition Management Information Retrieval  
DoD - Department of Defense  
DSN - Defense Switched Network  
EMD - Engineering and Manufacturing Development  
EVM - Earned Value Management  
FOC - Full Operational Capability  
FMS - Foreign Military Sales  
FRP - Full Rate Production  
FY - Fiscal Year  
FYDP - Future Years Defense Program  
ICE - Independent Cost Estimate  
IOC - Initial Operational Capability  
Inc - Increment  
JROC - Joint Requirements Oversight Council  
\$K - Thousands of Dollars  
KPP - Key Performance Parameter  
LRIP - Low Rate Initial Production  
\$M - Millions of Dollars  
MDA - Milestone Decision Authority  
MDAP - Major Defense Acquisition Program  
MILCON - Military Construction  
N/A - Not Applicable  
O&M - Operations and Maintenance  
ORD - Operational Requirements Document  
OSD - Office of the Secretary of Defense  
O&S - Operating and Support  
PAUC - Program Acquisition Unit Cost

PB - President's Budget  
PE - Program Element  
PEO - Program Executive Officer  
PM - Program Manager  
POE - Program Office Estimate  
RDT&E - Research, Development, Test, and Evaluation  
SAR - Selected Acquisition Report  
SCP - Service Cost Position  
TBD - To Be Determined  
TY - Then Year  
UCR - Unit Cost Reporting  
U.S. - United States  
USD(AT&L) - Under Secretary of Defense (Acquisition, Technology and Logistics)

## Program Information

**Program Name**

Global Positioning System III (GPS III)

**DoD Component**

Air Force

## Responsible Office

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**Date Assigned:** July 8, 2015

## References

**SAR Baseline (Production Estimate)**

Defense Acquisition Executive (DAE) Approved Acquisition Program Baseline (APB) dated January 31, 2011

**Approved APB**

Air Force Acquisition Executive (AFAE) Approved Acquisition Program Baseline (APB) dated December 12, 2017



## Mission and Description

Global Positioning System (GPS) is a satellite-based radio navigation system that provides worldwide military and civil users satellite signals they can process to determine accurate position, velocity, and time. On May 8, 2000, the USD(AT&L) approved entry into the initial modernization efforts for Navstar GPS. GPS III, an Acquisition Category IC program, is the next generation space vehicle (SV) that will provide significant enhancements to complete the modernization of the constellation. GPS III complies with section 2281 of title 10, United States Code (USC), ensuring the continued sustainment and operation of GPS for military and civilian purposes, and section 50112 of title 51, USC, continuing as an international standard available on a continuous worldwide basis free of direct user fees.

As captured in a November 6, 2006 Memorandum, the JROC validated and endorsed the GPS III CDD for the first increment, validating the requirements for the GPS III program and authorized the Air Force to deliver SV01-SV08. In his February 27, 2015 ADM, the USD(AT&L) directed the procurement of SV09/10 as technical equivalents for SV01-08. Follow-on vehicles SV11+ will be procured in a separate ACAT IB program called GPS III Follow-On (GPS IIIF).

The primary GPS III missions are worldwide positioning, navigation, and precise time transfer. GPS provides strategic and tactical support to the following 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.

For military users, the GPS III 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 via a hosted payload.

The GPS III program provides a Standard Positioning Service to a broad spectrum of civil users which will include the three civil signals (L1 C/A, L2C, and L5) flown on previous satellites. It will also transmit a new fourth civil signal (L1C), which is compatible with the European Galileo satellite navigation system signal, E1. L1C is also compatible with those signals planned for broadcast on Japan's Quasi-Zenith Satellite System, a system meant to augment GPS services. Once implemented, the 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.



## Executive Summary

### Program Highlights Since Last Report

On November 30, 2017, the GPS III program reclassified from an ACAT ID to ACAT IC program. USD(AT&L) delegated MDA to the Secretary of the Air Force. On December 12, 2017 the MDA signed the GPS III revised APB, updating Available for Launch (AFL) dates for Space Vehicles (SV) 01, 02 and 08, due to a schedule breach and projected schedule deviations.

The Air Force deferred SV01 AFL in February 2017 for an Enterprise wide review of the Lockheed Martin A2100 Propulsion Subsystem performance across the GPS, Advanced Extremely High Frequency (AEHF) and Space Based Infrared Systems (SBIRS) programs. Observations during transfer orbit operations on other satellite programs prompted the review. A 4-corners tested Liquid Apogee Engine (LAE) replaced the original SV01 LAE and completed regression testing on July 25, 2017. The Air Force declared SV01 AFL on September 22, 2017 and placed it into storage at the GPS Production Facility (GPF), awaiting Initial Launch Capability (ILC) in CY 2018. All subsequent Space Vehicles will fly with flight worthy LAEs.

The Mission Readiness Campaign team completed Rehearsal #1 on July 28, 2017 which demonstrated the Launch and Checkout System successfully completed Mission Event Sequences. Next Generation Operational Control System (OCX) Block 0 Acceptance for GPS III Launch and Check-out System successfully completed on October 26, 2017. The Factory Mission Readiness Test completed on November 1, 2017, which validated the hardware and software between the Space and the Ground segments. Mission event #8 completed November 29, 2017 and demonstrated the capability to upload the Flight Software to the GPS III On-Board Computer.

The Assembly, Integration & Test team completed major milestones. SV02 completed Thermal Vacuum (TVAC) testing on December 8, 2017; SV03 completed System Performance Test on November 22, 2017. The SV04 Mission Data Unit delivered on October 29, 2017 and installed on November 02, 2017. All subsequent production SVs are proceeding nominally.

The launch operation team awarded the launch schedule extension contract on December 21, 2017. This contract added scope to include SV03 - 08 storage, restructuring on-orbit support, satellite checkout options, launch readiness support, payload processing and on-orbit sustainment.

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
November 2000	GPS III-specific concepts were pursued through two 1-year GPS III System Architecture and Requirements Definition (SARD) contracts awarded to Boeing and Lockheed Martin on November 9, 2000.
January 2004	Following the SARD efforts, two competitive GPS III Phase A contracts were authorized. These contracts continued to mature the GPS III joint space and control segment concept.
January 2005	The Under Secretary of the Air Force, (SAF/US) directed that the GPS III control and space segments be contracted for separately to the "best of breed" industry partners for each segment, concurrently designating the program office as the integrator of the two segments.
February 2005	Pursuant to SAF/US direction, the program office released a Request for Information to assess the technical, programmatic, and contractual alternatives available for the control and space segment acquisitions. The program office determined that Boeing and Lockheed Martin were the only two viable space segment prime contractors and extended the Phase A contracts with Boeing and Lockheed Martin to conduct Payload Risk Reduction and System Definition, a Delta-System Requirements Review that concluded in November 2006, a System Design Review that concluded in April 2007, and SV Risk Reduction and Systems Definition.
May 2008	The USD(AT&L) signed the GPS III APB and ADM, designating GPS III as an ACAT ID MDAP with approval to proceed into Phase B, preliminary design, and the authority to procure development SVs 01-02. On May 15, 2008, the GPS III contract was awarded to Lockheed Martin, giving them authority to proceed.
October 2008	GPS III successfully completed its Integrated Baseline Review (IBR). The program implemented a comprehensive IBR process that validated the content, integrity and executability of the GPS III baseline, and ensured a low risk and high confidence execution.
May 2009	GPS III successfully completed its SV Preliminary Design Review (PDR). This significant milestone demonstrated that the technical baseline had been established, requirements were stable and allocated to the appropriate level, the requirements were under configuration control, and the preliminary design met all KPPs.
August 2010	As a result of the successful PDR completion, GPS III proceeded into its Critical Design Review (CDR) process which concluded with a successful SV CDR. This significant milestone demonstrated that the detailed design met all KPP requirements and was producible.
December 2010	In preparation for the Annual GPS Enterprise Review, GPS III successfully completed an Independent Program Assessment review, an Air Force Review Board, and an Overarching Integrated Product Team review.
January 2011	GPS III secured Milestone C approval and was authorized to begin long lead procurement. An ADM, an updated Acquisition Strategy Document and an updated APB were signed by the MDA authorizing the program to begin long lead procurement of production SV03-SV08.
January 2011	Initial indications of technical problems with the Navigation Payload led to the formation of the Mission Data Unit (MDU) Tiger Team.
February 2013	The SV01 BUS achieved Initial Power Turn-On and the team successfully completed a third simulation of GPS III Launch and Checkout System readiness exercise between GPS III and GPS OCX in August 2013.
December 2013	The GPS III program received permission from the MDA to exercise the current Cost Plus Incentive Fee/Award Fee contract options for SV05-08. The option for SV05-SV06 was awarded in December 2013, and the SV07-SV08 option was awarded in March 2014.

March 2014	The program addressed Navigation Payload MDU technical challenges associated with SV01, which impacted the GPS III contract cost and schedule baseline.
June 2014	The program approved Lockheed Martin to conduct an Over Target Baseline (OTB) for SVs 01-08. The OTB concluded in May 2015.
February 2015	USD(AT&L) signed an ADM approving the purchase of SV09-10 as technical equivalents to SV01-08.
March 2015	The GPS III prime contractor requested an OTB due to an invalid contract baseline. The Government completed OTB activities and the MDA approved a new contract baseline.
December 2015	SV01 successfully completed baseline TVAC testing on December 23, 2015. This is a major system-level event. Significant confidence was gained in contractor design and workmanship based on TVAC testing, demonstrating the satellite can perform successfully in a space environment.
January 2016	USD(AT&L) signed the updated APB. This update to the original APB was due to both cost and schedule breaches. In addition, the revised APB added SV09-10 to the MDAP program of record.
November 2017	USD(AT&L) delegated the MDA for the program to the Secretary of the Air Force as an ACAT IC.
December 2017	The MDA signed the updated APB Change 2, approving new AFL dates for SVs 01, 02 and 08 due to a schedule breach and projected schedule deviations.

## Threshold Breaches

### APB Breaches

<b>Schedule</b>		<input type="checkbox"/>
<b>Performance</b>		<input type="checkbox"/>
<b>Cost</b>	RDT&E	<input type="checkbox"/>
	Procurement	<input type="checkbox"/>
	MILCON	<input type="checkbox"/>
	Acq O&M	<input type="checkbox"/>
<b>O&amp;S Cost</b>		<input type="checkbox"/>
<b>Unit Cost</b>	PAUC	<input type="checkbox"/>
	APUC	<input type="checkbox"/>

### Nunn-McCurdy Breaches

#### Current UCR Baseline

PAUC	None
APUC	None

#### Original UCR Baseline

PAUC	None
APUC	None



## Schedule



Schedule Events				
Events	SAR Baseline Production Estimate	Current APB Production Objective/Threshold		Current Estimate
GPS III KDP-B	Feb 2008	Feb 2008	Aug 2008	May 2008
GPS III Preliminary Design Review	Apr 2009	Apr 2009	Oct 2009	May 2009
GPS III Critical Design Review	Jul 2010	Jul 2010	Jan 2011	Aug 2010
GPS III Milestone C	Oct 2010	Oct 2010	Apr 2011	Jan 2011
GPS III SV01 AFL	Apr 2014	Sep 2017	Mar 2018	Sep 2017 (Ch-1)
GPS III SV02 AFL	Apr 2015	Aug 2018	Feb 2019	Aug 2018 (Ch-1)
GPS III SV08 AFL	May 2018	Jun 2021	Dec 2021	Jun 2021 (Ch-1)
GPS III SV10 AFL	N/A	Nov 2022	May 2023	Nov 2022

### Change Explanations

(Ch-1) GPS III SV01, GPS III SV02, and GPS III SV08 AFLs current estimates changed from TBD in the December 2016 SAR to September 2017, August 2018, and June 2021 in the December 2017 SAR respectively to reflect the new APB signed by the MDA on December 12, 2017.

### Acronyms and Abbreviations

AFL - Available for Launch  
 KDP - Key Decision Point  
 SV - Space Vehicle



## Performance

Performance Characteristics				
SAR Baseline Production Estimate	Current APB Production Objective/Threshold	Demonstrated Performance	Current Estimate	
<b>Backward Compatibility</b>				
All modifications made to the existing GPS Space Segment and Control Segment shall allow continued operation of existing ICD-GPS-200 and 700, IS-GPS-705, and SS-GPS-001 compliant UE and continued operation of legacy receivers (to include Federal augmentation system receivers).	All modifications made to the existing GPS Space Segment and Control Segment shall allow continued operation of existing ICD-GPS-200 and 700, IS-GPS-705, and SS-GPS-001 compliant UE and continued operation of legacy receivers (to include Federal augmentation system receivers).	(T=O) All modifications made to the existing GPS Space Segment and Control Segment shall allow continued operation of existing ICD-GPS-200 and 700, IS-GPS-705, and SS-GPS-001 compliant UE and continued operation of legacy receivers (to include Federal augmentation system receivers).	TBD	All modifications made to the existing GPS Space Segment and Control Segment shall allow continued operation of existing ICD-GPS-200 and 700, IS-GPS-705, and SS-GPS-001 compliant UE and continued operation of legacy receivers (to include Federal augmentation system receivers).
<b>User Range Error (meters)</b>				
.2	.2	1.1	TBD	1.0
<b>Net-Ready</b>				
The system must fully support execution of all joint operational activities identified in the applicable joint and system integrated architectures and the system must satisfy the technical requirements for Net-Centric military operations.	The system must fully support execution of all joint operational activities identified in the applicable joint and system integrated architectures and the system must satisfy the technical requirements for Net-Centric military operations.	The system must fully support execution of joint critical operational activities identified in the applicable joint and system integrated architectures and the system must satisfy the technical requirements for transition to Net-Centric military operations.	TBD	The system must fully support execution of all joint operational activities identified in the applicable joint and system integrated architectures and the system must satisfy the technical requirements for Net-Centric military operations.
<b>Satellite Availability</b>				
0.984	0.984	(T=O) 0.984	TBD	0.984
<b>Boosted Earth-Coverage M-Code Power (dBW)</b>				
-148	-148	-153	TBD	-151.7
<b>Minimum L1C Signal Power</b>				
-157	-157	(T=O) -157	TBD	-157
<b>Position and Time Transfer Integrity (Probability of Misleading SIS Information)</b>				
0.0000001	0.0000001	0.0001	TBD	0.00000001

**Requirements Reference**

CDD for Increment A dated November 6, 2006

**Change Explanations**

None

**Notes**

Demonstrated Performance for the Net Ready KPPs is TBD until it is verified with the completion of integrated system test-1 which verifies that OCX Block 1 can command and control legacy GPS II and new GPS III SVs. Estimated completion dates for the capabilities are as follows:

- Backward Compatibility and Satellite availability: Second Quarter FY 2019
- Position Time Transfer and User Range Error: Third Quarter FY 2019
- Boosted Earth Coverage M-Code Power (dBW): First Quarter FY 2020
- Minimum L1C Signal Power: Second Quarter FY 2022

**Acronyms and Abbreviations**

dBW - Decibel-watt  
GPS - Global Positioning System  
ICD - Interface Control Document  
IS - Interface Specifications  
M-Code - Military Code  
O - Objective  
OCX - Next Generation Operational Control System  
SIS - Signal in Space  
SS - System Specifications  
SV - Space Vehicle  
T - Threshold  
UE - User Equipment



## Track to Budget

### General Notes

In December 2014, the Office of Management and Budget directed the DoD to establish a new space procurement appropriation. Beginning in FY 2016, Air Force major procurement funding formerly under 3020F (Missile Procurement, Air Force) BA 05 will now be under 3021F (Space Procurement, Air Force) BA 01, a three-year procurement account.

### RDT&E

Appn	BA	PE	
Air Force	3600	07	0305265F
	<b>Project</b>	<b>Name</b>	
	67A019	GPS IIIA (Shared) (Sunk)	
Air Force	3600	04	0603421F
	<b>Project</b>	<b>Name</b>	
	644993	GPS III Development (Sunk)	
Air Force	3600	07	1203265F
	<b>Project</b>	<b>Name</b>	
	67A019	GPS III (Shared)	

### Notes

The shared funding lines include funding for SV11+ however these funds are not included in this SAR.

### Procurement

Appn	BA	PE	
Air Force	3020	05	0305265F
	<b>Line Item</b>	<b>Name</b>	
	GPSIII	GPS III Space Segment (Shared) (Sunk)	
Air Force	3021	01	0305265F
	<b>Line Item</b>	<b>Name</b>	
	GPSIII	GPS III Space Segment (Shared) (Sunk)	
Air Force	3021	01	1203265F
	<b>Line Item</b>	<b>Name</b>	
	GPSIII	GPS III Space Segment (Shared)	

## Cost and Funding

### Cost Summary

Total Acquisition Cost							
Appropriation	BY 2010 \$M			BY 2010 \$M	TY \$M		
	SAR Baseline Production Estimate	Current APB Production Objective/Threshold		Current Estimate	SAR Baseline Production Estimate	Current APB Production Objective	Current Estimate
RDT&E	2623.9	2985.1	3283.6	2984.3	2653.8	3080.1	3081.1
Procurement	1519.0	2311.3	2542.4	2095.2	1616.0	2570.0	2329.7
Flyaway	--	--	--	1705.2	--	--	1864.4
Recurring	--	--	--	1697.3	--	--	1855.0
Non Recurring	--	--	--	7.9	--	--	9.4
Support	--	--	--	390.0	--	--	465.3
Other Support	--	--	--	390.0	--	--	465.3
Initial Spares	--	--	--	0.0	--	--	0.0
MILCON	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Acq O&M	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	4142.9	5296.4	N/A	5079.5	4269.8	5650.1	5410.8

#### Current APB Cost Estimate Reference

SCP dated July 02, 2015

#### Cost Notes

In accordance with Section 842 of the National Defense Authorization Act for FY 2017, which amended title 10 U.S.C. § 2334, the Director of Cost Assessment and Program Evaluation, and the Secretary of the military department concerned or the head of the Defense Agency concerned, must issue guidance requiring a discussion of risk, the potential impacts of risk on program costs, and approaches to mitigate risk in cost estimates for MDAPs and major subprograms. The information required by the guidance is to be reported in each SAR. This guidance is not yet available; therefore, the information on cost risk is not contained in this SAR.

Total Quantity			
Quantity	SAR Baseline Production Estimate	Current APB Production	Current Estimate
RDT&E	2	2	2
Procurement	6	8	8
Total	8	10	10



## Cost and Funding

### Funding Summary

Appropriation Summary									
FY 2019 President's Budget / December 2017 SAR (TY\$ M)									
Appropriation	Prior	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	To Complete	Total
RDT&E	2879.9	102.6	36.1	24.0	7.2	7.3	7.5	16.5	3081.1
Procurement	1906.9	48.1	66.3	72.0	57.4	59.9	77.0	42.1	2329.7
MILCON	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Acq O&M	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PB 2019 Total	4786.8	150.7	102.4	96.0	64.6	67.2	84.5	58.6	5410.8
PB 2018 Total	4786.8	132.2	108.7	92.7	25.9	26.4	59.7	204.7	5437.1
Delta	0.0	18.5	-6.3	3.3	38.7	40.8	24.8	-146.1	-26.3

Quantity Summary										
FY 2019 President's Budget / December 2017 SAR (TY\$ M)										
Quantity	Undistributed	Prior	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	To Complete	Total
Development	2	0	0	0	0	0	0	0	0	2
Production	0	8	0	0	0	0	0	0	0	8
PB 2019 Total	2	8	0	0	0	0	0	0	0	10
PB 2018 Total	2	8	0	0	0	0	0	0	0	10
Delta	0	0	0	0	0	0	0	0	0	0

## Cost and Funding

### Annual Funding By Appropriation

Annual Funding							
3600   RDT&E   Research, Development, Test, and Evaluation, Air Force							
Fiscal Year	Quantity	TY \$M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
2002	--	--	--	--	--	--	51.5
2003	--	--	--	--	--	--	39.7
2004	--	--	--	--	--	--	--
2005	--	--	--	--	--	--	21.2
2006	--	--	--	--	--	--	51.4
2007	--	--	--	--	--	--	195.2
2008	--	--	--	--	--	--	189.8
2009	--	--	--	--	--	--	356.7
2010	--	--	--	--	--	--	390.6
2011	--	--	--	--	--	--	405.3
2012	--	--	--	--	--	--	399.6
2013	--	--	--	--	--	--	237.1
2014	--	--	--	--	--	--	193.3
2015	--	--	--	--	--	--	172.6
2016	--	--	--	--	--	--	101.3
2017	--	--	--	--	--	--	74.6
2018	--	--	--	--	--	--	102.6
2019	--	--	--	--	--	--	36.1
2020	--	--	--	--	--	--	24.0
2021	--	--	--	--	--	--	7.2
2022	--	--	--	--	--	--	7.3
2023	--	--	--	--	--	--	7.5
2024	--	--	--	--	--	--	5.1
2025	--	--	--	--	--	--	4.4
2026	--	--	--	--	--	--	2.0
2027	--	--	--	--	--	--	2.0
2028	--	--	--	--	--	--	2.0
2029	--	--	--	--	--	--	1.0
Subtotal	2	--	--	--	--	--	3081.1

Annual Funding							
3600   RDT&E   Research, Development, Test, and Evaluation, Air Force							
Fiscal Year	Quantity	BY 2010 \$M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
2002	--	--	--	--	--	--	60.1
2003	--	--	--	--	--	--	45.7
2004	--	--	--	--	--	--	--
2005	--	--	--	--	--	--	23.2
2006	--	--	--	--	--	--	54.6
2007	--	--	--	--	--	--	202.0
2008	--	--	--	--	--	--	192.6
2009	--	--	--	--	--	--	357.2
2010	--	--	--	--	--	--	386.3
2011	--	--	--	--	--	--	393.4
2012	--	--	--	--	--	--	381.2
2013	--	--	--	--	--	--	222.5
2014	--	--	--	--	--	--	178.9
2015	--	--	--	--	--	--	158.1
2016	--	--	--	--	--	--	91.5
2017	--	--	--	--	--	--	66.2
2018	--	--	--	--	--	--	89.5
2019	--	--	--	--	--	--	30.9
2020	--	--	--	--	--	--	20.2
2021	--	--	--	--	--	--	5.9
2022	--	--	--	--	--	--	5.9
2023	--	--	--	--	--	--	5.9
2024	--	--	--	--	--	--	4.0
2025	--	--	--	--	--	--	3.4
2026	--	--	--	--	--	--	1.5
2027	--	--	--	--	--	--	1.5
2028	--	--	--	--	--	--	1.4
2029	--	--	--	--	--	--	0.7
Subtotal	2	--	--	--	--	--	2984.3



Annual Funding								
3020   Procurement   Missile Procurement, Air Force								
Fiscal Year	Quantity	TY \$M						
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program	
2010	--	96.0	--	--	96.0	--	96.0	
2011	--	--	--	--	--	--	--	
2012	2	413.1	--	--	413.1	39.0	452.1	
2013	2	458.3	--	--	458.3	33.0	491.3	
2014	2	417.5	--	--	417.5	31.8	449.3	
2015	1	196.0	--	0.7	196.7	19.5	216.2	
Subtotal	7	1580.9	--	0.7	1581.6	123.3	1704.9	

Annual Funding								
3020   Procurement   Missile Procurement, Air Force								
Fiscal Year	Quantity	BY 2010 \$M						
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program	
2010	--	94.0	--	--	94.0	--	94.0	
2011	--	--	--	--	--	--	--	
2012	2	390.1	--	--	390.1	36.8	426.9	
2013	2	423.1	--	--	423.1	30.5	453.6	
2014	2	380.2	--	--	380.2	28.9	409.1	
2015	1	176.5	--	0.6	177.1	17.6	194.7	
Subtotal	7	1463.9	--	0.6	1464.5	113.8	1578.3	



Cost Quantity Information		
3020   Procurement   Missile Procurement, Air Force		
Fiscal Year	Quantity	End Item Recurring Flyaway (Aligned With Quantity) BY 2010 \$M
2010	--	--
2011	--	--
2012	2	418.3
2013	2	418.3
2014	2	418.2
2015	1	209.1
Subtotal	7	1463.9

Annual Funding							
3021   Procurement   Space Procurement, Air Force							
Fiscal Year	Quantity	TY \$M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
2016	1	144.0	--	--	144.0	28.8	172.8
2017	--	3.7	--	2.3	6.0	23.2	29.2
2018	--	8.1	4.7	3.1	15.9	32.2	48.1
2019	--	18.7	7.0	1.1	26.8	39.5	66.3
2020	--	27.7	4.0	1.1	32.8	39.2	72.0
2021	--	7.9	6.3	1.1	15.3	42.1	57.4
2022	--	11.2	4.4	--	15.6	44.3	59.9
2023	--	25.9	--	--	25.9	51.1	77.0
2024	--	0.5	--	--	0.5	15.4	15.9
2025	--	--	--	--	--	5.7	5.7
2026	--	--	--	--	--	2.6	2.6
2027	--	--	--	--	--	2.5	2.5
2028	--	--	--	--	--	2.5	2.5
2029	--	--	--	--	--	2.6	2.6
2030	--	--	--	--	--	2.5	2.5
2031	--	--	--	--	--	2.4	2.4
2032	--	--	--	--	--	2.1	2.1
2033	--	--	--	--	--	1.8	1.8
2034	--	--	--	--	--	1.5	1.5
Subtotal	1	247.7	26.4	8.7	282.8	342.0	624.8

Annual Funding							
3021   Procurement   Space Procurement, Air Force							
Fiscal Year	Quantity	BY 2010 \$M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
2016	1	127.6	--	--	127.6	25.6	153.2
2017	--	3.2	--	2.0	5.2	20.2	25.4
2018	--	6.9	4.0	2.6	13.5	27.5	41.0
2019	--	15.6	5.9	0.9	22.4	33.0	55.4
2020	--	22.7	3.3	0.9	26.9	32.1	59.0
2021	--	6.4	5.1	0.9	12.4	33.7	46.1
2022	--	8.8	3.5	--	12.3	34.9	47.2
2023	--	20.0	--	--	20.0	39.5	59.5
2024	--	0.4	--	--	0.4	11.6	12.0
2025	--	--	--	--	--	4.2	4.2
2026	--	--	--	--	--	1.9	1.9
2027	--	--	--	--	--	1.8	1.8
2028	--	--	--	--	--	1.7	1.7
2029	--	--	--	--	--	1.8	1.8
2030	--	--	--	--	--	1.7	1.7
2031	--	--	--	--	--	1.6	1.6
2032	--	--	--	--	--	1.4	1.4
2033	--	--	--	--	--	1.1	1.1
2034	--	--	--	--	--	0.9	0.9
Subtotal	1	211.6	21.8	7.3	240.7	276.2	516.9

Cost Quantity Information		
3021   Procurement   Space Procurement, Air Force		
Fiscal Year	Quantity	End Item Recurring Flyaway (Aligned With Quantity) BY 2010 \$M
2016	1	211.6
2017	--	--
2018	--	--
2019	--	--
2020	--	--
2021	--	--
2022	--	--
2023	--	--
2024	--	--
2025	--	--
2026	--	--
2027	--	--
2028	--	--
2029	--	--
2030	--	--
2031	--	--
2032	--	--
2033	--	--
2034	--	--
Subtotal	1	211.6

## Low Rate Initial Production

There is no LRIP for this program.

**Foreign Military Sales**

None

**Nuclear Costs**

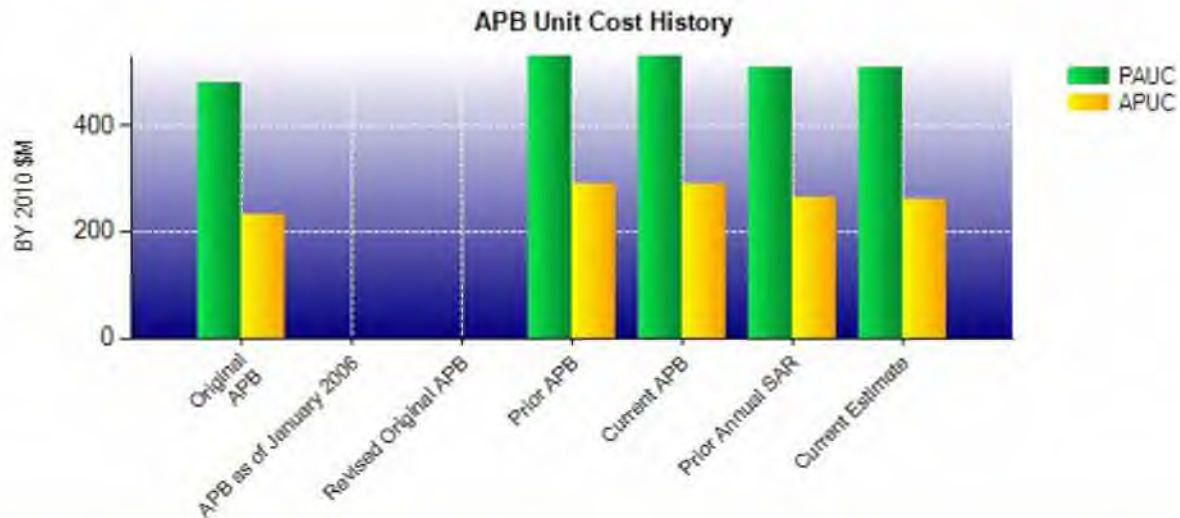
None



## Unit Cost

Current UCR Baseline and Current Estimate (Base-Year Dollars)			
Item	BY 2010 \$M	BY 2010 \$M	% Change
	Current UCR Baseline (Dec 2017 APB)	Current Estimate (Dec 2017 SAR)	
Program Acquisition Unit Cost			
Cost	5296.4	5079.5	
Quantity	10	10	
Unit Cost	529.640	507.950	-4.10
Average Procurement Unit Cost			
Cost	2311.3	2095.2	
Quantity	8	8	
Unit Cost	288.912	261.900	-9.35
Original UCR Baseline and Current Estimate (Base-Year Dollars)			
Item	BY 2010 \$M	BY 2010 \$M	% Change
	Original UCR Baseline (May 2008 APB)	Current Estimate (Dec 2017 SAR)	
Program Acquisition Unit Cost			
Cost	3840.8	5079.5	
Quantity	8	10	
Unit Cost	480.100	507.950	+5.80
Average Procurement Unit Cost			
Cost	1381.0	2095.2	
Quantity	6	8	
Unit Cost	230.167	261.900	+13.79





APB Unit Cost History					
Item	Date	BY 2010 \$M		TY \$M	
		PAUC	APUC	PAUC	APUC
Original APB	May 2008	480.100	230.167	500.288	248.383
APB as of January 2006	N/A	N/A	N/A	N/A	N/A
Revised Original APB	N/A	N/A	N/A	N/A	N/A
Prior APB	Jan 2016	528.520	287.912	565.010	321.250
Current APB	Dec 2017	529.640	288.912	565.010	321.250
Prior Annual SAR	Dec 2016	507.920	263.762	543.710	296.438
Current Estimate	Dec 2017	507.950	261.900	541.080	291.212

### SAR Unit Cost History

Initial SAR Baseline to Current SAR Baseline (TY \$M)									
Initial PAUC Development Estimate	Changes								PAUC Production Estimate
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
500.288	-9.013	0.000	0.775	0.000	63.063	-9.513	-11.875	33.437	533.725

Current SAR Baseline to Current Estimate (TY \$M)									
PAUC Production Estimate	Changes								PAUC Current Estimate
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
533.725	2.760	-31.275	0.000	0.000	-11.340	0.000	47.210	7.355	541.080

Initial SAR Baseline to Current SAR Baseline (TY \$M)									
Initial APUC Development Estimate	Changes								APUC Production Estimate
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
248.383	-6.450	0.000	1.033	0.000	54.933	-12.733	-15.833	20.950	269.333

Current SAR Baseline to Current Estimate (TY \$M)									
APUC Production Estimate	Changes								APUC Current Estimate
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
269.333	2.262	27.005	0.000	0.000	-66.400	0.000	59.012	21.879	291.212

SAR Baseline History				
Item	SAR Planning Estimate	SAR Development Estimate	SAR Production Estimate	Current Estimate
Milestone A	N/A	N/A	N/A	N/A
Milestone B	N/A	Feb 2008	Feb 2008	May 2008
Milestone C	N/A	Sep 2009	Oct 2010	Jan 2011
IOC	N/A	N/A	N/A	N/A
Total Cost (TY \$M)	N/A	4002.3	4269.8	5410.8
Total Quantity	N/A	8	8	10
PAUC	N/A	500.288	533.725	541.080

**Cost Variance**

Summary TY \$M				
Item	RDT&E	Procurement	MILCON	Total
SAR Baseline (Production Estimate)	2653.8	1616.0	--	4269.8
Previous Changes				
Economic	+11.4	+22.6	--	+34.0
Quantity	--	+754.7	--	+754.7
Schedule	--	--	--	--
Engineering	--	--	--	--
Estimating	+400.4	-488.9	--	-88.5
Other	--	--	--	--
Support	--	+467.1	--	+467.1
Subtotal	+411.8	+755.5	--	+1167.3
Current Changes				
Economic	-1.9	-4.5	--	-6.4
Quantity	--	--	--	--
Schedule	--	--	--	--
Engineering	--	--	--	--
Estimating	+17.4	-42.3	--	-24.9
Other	--	--	--	--
Support	--	+5.0	--	+5.0
Subtotal	+15.5	-41.8	--	-26.3
Total Changes	+427.3	+713.7	--	+1141.0
CE - Cost Variance	3081.1	2329.7	--	5410.8
CE - Cost & Funding	3081.1	2329.7	--	5410.8



Summary BY 2010 \$M				
Item	RDT&E	Procurement	MILCON	Total
SAR Baseline (Production Estimate)	2623.9	1519.0	--	4142.9
Previous Changes				
Economic	--	--	--	--
Quantity	--	+661.1	--	+661.1
Schedule	--	--	--	--
Engineering	--	--	--	--
Estimating	+345.2	-439.9	--	-94.7
Other	--	--	--	--
Support	--	+369.9	--	+369.9
Subtotal	+345.2	+591.1	--	+936.3
Current Changes				
Economic	--	--	--	--
Quantity	--	--	--	--
Schedule	--	--	--	--
Engineering	--	--	--	--
Estimating	+15.2	-35.0	--	-19.8
Other	--	--	--	--
Support	--	+20.1	--	+20.1
Subtotal	+15.2	-14.9	--	+0.3
Total Changes	+360.4	+576.2	--	+936.6
CE - Cost Variance	2984.3	2095.2	--	5079.5
CE - Cost & Funding	2984.3	2095.2	--	5079.5

Previous Estimate: December 2016

RDT&E		\$M	
Current Change Explanations		Base Year	Then Year
Revised escalation indices. (Economic)		N/A	-1.9
Increased funding for Mission Readiness Campaign. (Estimating)		+17.9	+20.6
Revised estimate to align with FY 2019 PB. (Estimating)		+1.0	+1.3
Adjustment for current and prior escalation. (Estimating)		+1.0	+1.1
Revised estimate due to removal of launch checkout and on-orbit support on the Launch Schedule Extension contract. (Estimating)		-4.7	-5.6
RDT&E Subtotal		+15.2	+15.5

Procurement		\$M	
Current Change Explanations		Base Year	Then Year
Revised escalation indices. (Economic)		N/A	-4.5
Revised estimate due to removal of launch checkout and on-orbit support on the Launch Schedule Extension contract. (Estimating)		-36.5	-44.1
Adjustment for current and prior escalation. (Estimating)		+1.5	+1.8
Adjustment for current and prior escalation. (Support)		+0.6	+0.4
Increase in Initial Spares due to the removal of launch checkout and on-orbit support on the Launch Schedule Extension contract. (Support)		+19.5	+4.6
Procurement Subtotal		-14.9	-41.8

## Contracts

Contract Identification	
<b>Appropriation:</b>	Procurement
<b>Contract Name:</b>	Global Positioning System (GPS) III (Production)
<b>Contractor:</b>	Lockheed Martin Space Systems Denver
<b>Contractor Location:</b>	Littleton, CO 80125
<b>Contract Number:</b>	FA8807-08-C-0010/2
<b>Contract Type:</b>	Cost Plus Incentive Fee (CPIF), Cost Plus Award Fee (CPAF)
<b>Award Date:</b>	December 23, 2010
<b>Definitization Date:</b>	December 23, 2010

Contract Price							
Initial Contract Price (\$M)			Current Contract Price (\$M)			Estimated Price At Completion (\$M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
74.7	N/A	2	1164.7	N/A	8	1668.9	1724.8

Target Price Change Explanation
The difference between the Initial Contract Price Target and the Current Contract Price Target is due to the addition of the Space Vehicle (SV) 05-06, SV07-08 and SV09-10 efforts, as well as the Launch Schedule Extension contract.

Contract Variance		
Item	Cost Variance	Schedule Variance
Cumulative Variances To Date (12/31/2017)	+35.0	-83.7
Previous Cumulative Variances	+25.9	-66.7
Net Change	+9.1	-17.0

Cost and Schedule Variance Explanations
The favorable net change in the cost variance is due to Level of Effort underruns for SV03-06 in Assembly, Integration, and Test (AI&T). AI&T underruns are being driven by production schedule delays as a result of additional effort required in development.

The unfavorable net change in the schedule variance is due to issues with Mission Date Unit deliveries from Harris for SV03+, Earth Deck Antenna Assembly rework, and Scalable Power Regulator Unit delays.

Notes
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The Contractor's Estimated Price at Completion decreased due to the reduction in the Award Fee pool.



**Contract Identification**

**Appropriation:** Procurement  
**Contract Name:** GPS III Long Lead SV05-08  
**Contractor:** Lockheed Martin Space Systems Denver  
**Contractor Location:** Littleton, CO 80125  
**Contract Number:** FA8807-13-C-0002  
**Contract Type:** Fixed Price Incentive(Firm Target) (FPIF)  
**Award Date:** February 08, 2013  
**Definitization Date:** February 08, 2013

Contract Price							
Initial Contract Price (\$M)			Current Contract Price (\$M)			Estimated Price At Completion (\$M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
119.5	142.4	4	132.0	142.4	4	131.4	131.4

**Target Price Change Explanation**

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to addition of SV 07-08 Long Lead (LL) items and transfer of SV07-08 LL material from GPS III Production.

Contract Variance		
Item	Cost Variance	Schedule Variance
Cumulative Variances To Date (12/24/2017)	+1.6	-9.8
Previous Cumulative Variances	+0.1	-0.9
Net Change	+1.5	-8.9

**Cost and Schedule Variance Explanations**

The favorable net change in the cost variance is due to excess material transfers to BUS Production accounts for TT&C and Power, Power Conditioning & Distribution and SV Solar-Array.

The unfavorable net change in the schedule variance is due to delays in kitting/shipping of Remote Interface Unit, Transient Filter Unit, and Uplink/Downlink Unit parts for SV07 and SV08 from Electronic Manufacturing Facility to Rotary and Mission Systems Clearwater.

**Notes**

The Estimated Price decreased primarily due to material actuals transferring to the Production contract for SV09-10.

This contract is more than 90% complete; therefore, this is the final report for this contract.



## Deliveries and Expenditures

Deliveries				
Delivered to Date	Planned to Date	Actual to Date	Total Quantity	Percent Delivered
Development	1	1	2	50.00%
Production	0	0	8	0.00%
Total Program Quantity Delivered	1	1	10	10.00%

Expended and Appropriated (TY \$M)				
Total Acquisition Cost	5410.8	Years Appropriated		17
Expended to Date	3895.8	Percent Years Appropriated		51.52%
Percent Expended	72.00%	Appropriated to Date		4937.5
Total Funding Years	33	Percent Appropriated		91.25%

The above data is current as of February 12, 2018.

## Operating and Support Cost

### Cost Estimate Details

Date of Estimate:

Source of Estimate:

Quantity to Sustain:

Unit of Measure:

Service Life per Unit:

Fiscal Years in Service:

The GPS III program will provide O&S for on-orbit support through the Launch and On-Orbit Support contract. For Space Vehicle (SV)01 and SV02, this is funded with RDT&E, Air Force (AF) and for SV03-10, it is funded with Space Procurement, AF. These costs are captured in the cost and funding section of the SAR and will not appear here. The O&S responsibility for the control system will be accomplished through the GPS Logistics Directorate within the Next Generation Operational Control System.

### Sustainment Strategy

### Antecedent Information

Annual O&S Costs BY2010 \$M		
Cost Element	GPS III	No Antecedant (Antecedent)
Unit-Level Manpower	--	--
Unit Operations	--	--
Maintenance	--	--
Sustaining Support	--	--
Continuing System Improvements	--	--
Indirect Support	--	--
Other	--	--
Total	--	--

Item	Total O&S Cost \$M		
	GPS III		No Antecedant (Antecedent)
	Current Production APB Objective/Threshold	Current Estimate	
Base Year	0.0	0.0	N/A
Then Year	0.0	N/A	N/A
O&S Cost Variance			

Category	BY 2010 \$M	Change Explanations
Prior SAR Total O&S Estimates - Dec 2016 SAR	0.0	
Programmatic/Planning Factors	0.0	
Cost Estimating Methodology	0.0	
Cost Data Update	0.0	
Labor Rate	0.0	
Energy Rate	0.0	
Technical Input	0.0	
Other	0.0	
Total Changes	0.0	
Current Estimate	0.0	

**Disposal Estimate Details**

Date of Estimate:

Source of Estimate:

Disposal/Demilitarization Total Cost (BY 2010 \$M):