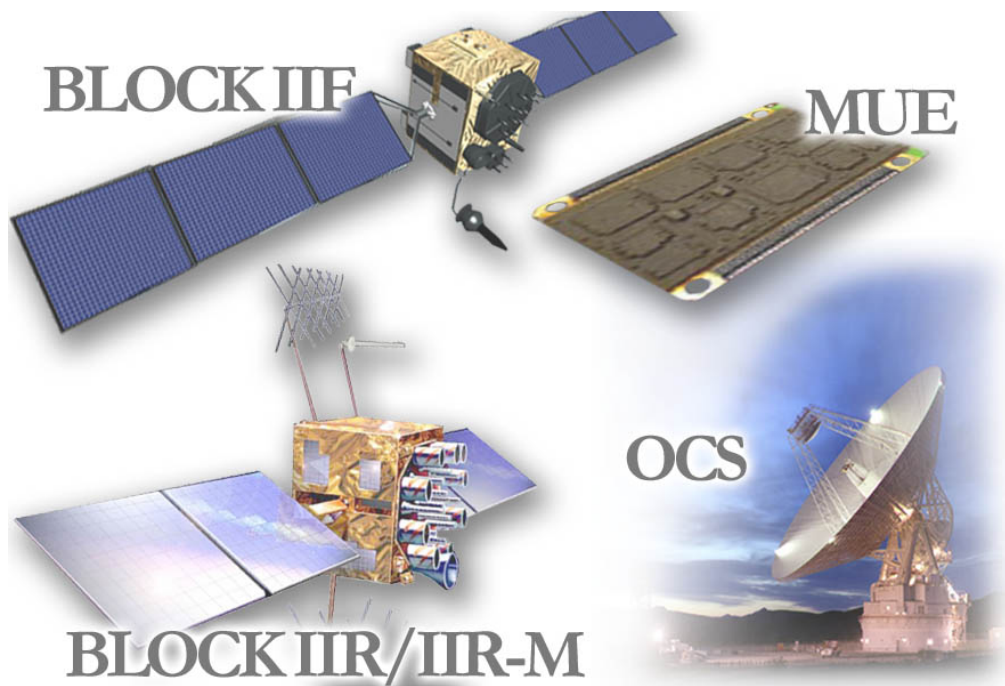




Selected Acquisition Report (SAR)

RCS: DD-A&T(Q&A)823-166



NAVSTAR Global Positioning System (NAVSTAR GPS)

As of FY 2011 President's Budget

Defense Acquisition Management
Information Retrieval
(DAMIR)

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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

Navstar Global Positioning System (GPS) (Navstar GPS)

DoD Component

Air Force

Responsible Office

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Date Assigned: June 18, 2007

References

Space & Control

SAR Baseline (Production Estimate)

Under Secretary of the Air Force (USecAF) Approved Acquisition Program Baseline (APB) dated February 26, 2002

Approved APB

Defense Acquisition Executive (DAE) Approved Acquisition Program Baseline (APB) dated February 9, 2007

User Equipment

SAR Baseline (Production Estimate)

Under Secretary of the Air Force (USecAF) Approved Acquisition Program Baseline (APB) dated February 26, 2002

Approved APB

Defense Acquisition Executive (DAE) Approved Acquisition Program Baseline (APB) dated February 9, 2007

Mission and Description

The Navstar Global Positioning System (GPS) is a space-based radio positioning, navigation, and time distribution system. GPS provides precise, continuous, all-weather, common-grid positioning, velocity, navigation, and time reference capability to civil, commercial, and military users worldwide. Military mission areas supported include: navigation and position fixing; air interdiction; close air support; special operations; strategic attack; counter-air and aerospace defense; theater and tactical command, control, communications and intelligence; precision munitions guidance; and ground/sea warfare. GPS also carries a suite of nuclear detonation detection system sensors as a secondary payload. These sensors provide worldwide, near realtime, 3-dimensional location of nuclear detonations.

The Modernized Space and Control portion reported here includes Block IIR, IIR-M, and IIF satellite capabilities and associated control segments. The Modernized User Equipment (MUE) program is currently developing two prototype M-code form factors and has plans to proceed through initial production qualification. However, specific MUE quantities are not currently addressed in this SAR because specific lead platforms and common applications have yet to be identified.

The Legacy Satellite and Control and the Legacy UE programs are essentially complete and are therefore not included in this report. The separate Acquisition Category (ACAT) III efforts for the Defense Advanced GPS Receiver (DAGR) and Miniaturized Airborne GPS Receiver 2000 (MAGR-2K) are also not included in this Selected Acquisition Report (SAR).

Executive Summary

Since the last SAR submission, the Global Positioning System (GPS) IIF program made significant strides toward delivery of its first satellite and readiness for first launch in mid-2010. While numerous technical challenges were identified and resolved, the government and contractor teams have maintained mission success as the number one priority for this nationally-critical program. This focus has created cost and schedule issues for the program, but strong and creative leadership has minimized those impacts to the greatest extent possible.

In May 2009, GPS IIF Space Vehicle (SV)-2 was used as a Pathfinder vehicle at Cape Canaveral Air Force Station (CCAFS) to validate satellite processing procedures and verify end-to-end system performance prior to shipping SV-1 for launch. The Pathfinder mission recovered 2 months of SV-1 launch schedule and significantly reduced schedule risk associated with first time launch delivery and processing. While SV-2 Pathfinder was not part of the program baseline, the additional time needed to work through L2 transmitter design issues presented an opportunity for this risk reduction effort prior to SV-1 shipment. All one-time SV to Control Segment testing was accomplished and 'lessons learned' streamlined the process for subsequent shipments. It is now considered a best-practice for future multiple-vehicle production efforts.

GPS IIF SV-1 was successfully shipped from Boeing in El Segundo, Ca to Cape Canaveral Air Force Station on February 12, 2010 and will be declared "available for launch" on March 11, 2010 when end-to-end system testing is complete. This represents an unrecoverable breach to our Acquisition Program Baseline milestone which was reported by the program director in June 2009 after significant technical issues were identified with our L2, L3, and L5 transmitters. L2 is used for both military and civil navigation signals, L3 is used to downlink Nuclear Detonation (NUDET) Detection System (NDS) information to their ground processors, and L5 is for the new civil signal. Portions of the L2 transmitter were identified as having insufficient multipaction margin which could have degraded or failed the transmitter by end of life when operating at specified power levels to meet our military and civil requirements; the prime contractor initiated a redesign effort with their supplier and have now tested, delivered, and installed fully qualified units in SVs 1-3. Multiple concerns were identified with the L3 and L5 transmitters, but the primary concern was with the design and multiple reworks on their 250W power supplies; the prime contractor determined it was in the best interest of the program to develop new power supplies in-house, which have now been tested, delivered, qualified and installed in SVs 1-3. The program has also worked through challenges with the Reaction Wheel Assemblies that help control the pointing of the satellite, the crosslink transmitters that send NDS information across the constellation, the S-band transmitter used for command and control of the satellite on-orbit, and the wiring harnesses of the solar arrays; these issues are closed or on a solid path to closure for GPS IIF SV-1, but have residual risks that could impact the final cost of the cost-plus development and production effort of the first three satellites.

Due to these technical challenges, the contractor has repeatedly revised their Estimates at Completion (EAC), bringing their EAC for the first three GPS IIF space vehicles to \$626M. While headcount reduction efforts and the SV-2 Pathfinder initiative mitigated total cost growth, the government has also had to increase its EAC and work to resolve the resulting funding issues. The government's current \$655M EAC incorporates execution risk to the contractor's schedule and represents 4 months of schedule slip in SV-3 delivery. This EAC exceeds current funding availability and the Air Force is assessing strategies to add funds to execute this essential program.

There are no significant software issues at this time.

GPS Control Segment

Since the December 2007 SAR, the GPS Wing made excellent progress toward modernizing the GPS Operational Control Segment (OCS). Architectural Evolution Plan (AEP) Version 5.2.2, the next developmental release of the new AEP satellite command and control system, replaced AEP Version 5.2.1, the initial operational release. AEP V5.2.2 delivered the necessary changes to fly the next block of GPS satellites—the Block IIF SVs. AEP V5.2.2 was installed on the ops floor at the GPS Master Control Station (MCS) at Schriever AFB in May 2008, but because the first GPS IIF SV was not ready for launch, the GPS Wing and the operational test community performed a risk analysis to determine the correct level of testing required to meet the APB milestone. This analysis revealed that developmental testing was sufficient for this incremental

AEP software build and the AEP V5.2.2 APB milestone was met on July 28, 2008—ahead of the October 2008 schedule threshold.

AEP V5.2.2 was then augmented by three maintenance releases. AEP Version 5.3.0 and AEP Version 5.3.5 delivered some high-priority problem report fixes and other changes needed to keep up with the evolving GPS IIF SV technical baseline. AEP Version 5.4 implemented a GPS remote site Black Shelter Equipment Upgrade (BSEU), which replaced most of the hard-to-maintain hardware at the various GPS remote sites.

AEP Version 5.5 is the last major development release planned for the new AEP system. It provides the functionality to implement the new security architecture inherent in GPS Selective Availability, Anti-Spoofing Module (SAASM) user equipment. It will also provide the needed updates to fly the first GPS IIF SV, now forecasted to launch in mid-2010. AEP V5.5 completed developmental system test in December 2008. However, additional operations (ops) suitability fixes were needed before this release could be taken operational. As a result, the Air Force notified the Defense Acquisition Executive (DAE) in June 2009 that delivery would miss the September 2009 AEP V5.5 schedule threshold. There was no associated Nunn-McCurdy cost breach. AEP V5.5 completed the last of its transition exercises in December 2009 and initially went operational on January 11, 2010. It is now flying the GPS constellation. A Force Development Evaluation (FDE) will be conducted on the GPS IIF functionality after the GPS IIF-1 launch. A Multi-Service Operational Test and Evaluation (MOT&E) event is also scheduled in the near future to evaluate the SAASM capability.

A new high-fidelity crew trainer—the GPS Positional Training Emulator (PTE)—was also developed and fielded at Schriever Air Force Base (AFB) to assist with AEP basic operator and advanced crew training. The PTE rehosts the existing AEP and GPS system simulator software on a new hardware platform to create a realistic training environment that mimics the actual ops floor. A GPS IIA/IIR training capability was delivered in September 2008. This was followed up with an initial GPS IIF training capability in March 2009. This allowed the GPS Wing, 50SW and HQ AFSPC/A3T to conduct a training simulator certification (SIMCERT) in April 2009 and operationally accept the first two AEP software releases (AEP V5.2.1 and AEP V5.2.2) on June 15, 2009. The PTE was upgraded with AEP V5.5 in January 2010 and a follow-on AEP V5.5 SIMCERT will be conducted this calendar year to support operational acceptance of the AEP V5.5 system.

The new GPS Launch/Early Orbit, Anomaly Resolution and Disposal Operations (LADO) satellite command and control system continues to work well. Since the new Commercial off the Shelf (COTS)-based client-server system went operational in October 2007, LADO has successfully launched out the remaining four GPS IIR-M SVs (GPS IIR-18(M) in December 2007, GPS IIR-19(M) in March 2008, GPS IIR-20(M) in March 2009, and GPS IIR-21(M) in August 2009).

However, operational acceptance was postponed until the LADO simulator could pass its training SIMCERT, which was performed in August 2008. HQ AFSPC/A3 operationally accepted the LADO GPS IIA/IIR capability on September 23, 2008.

Delivery of a follow-on GPS IIF LADO capability occurred in January 2008. 50SW crews have conducted six GPS IIF launch exercises and six full-up launch rehearsals using the new capability and stand ready to launch GPS IIF-1 when the SV arrives at CCAFS. Operational testing of this new capability will be conducted during the above mentioned GPS IIF FDE. In addition, LADO is also being used to fly several residual GPS satellites. Four GPS IIA are currently being kept in reserve in case of sudden on-orbit failure of one of the 31 active GPS satellites. In addition, a new LADO Off-Line Trainer has been procured to support LADO crew training since the LADO backup was taken to support LADO satellite ops.

There are no outstanding software issues at this time.

GPS User Equipment

The GPS Modernized User Equipment (MUE) contracts have continued to mature Military-Code (M-Code) capable GPS receiver technology, with developmental testing scheduled to begin in March 2010 and tech demonstration cards delivered for Government testing in April 2010. The resulting security evaluation, receiver card characterization, integration into operational platforms, and Government testing will form the basis for the Military GPS User Equipment (MGUE) Technology Readiness Assessment, the follow-on to the MUE receiver card and development effort.

In the Spring of 2008, each MUE contractor completed an Independent Baseline Review (IBR) with the GPSW. Critical Design Reviews (CDR) were held in the Summer of 2008 for two contractors and in the Fall 2008 for the third. Receiver

card deliveries to the GPSW were originally scheduled for July, 2009 for all three contractors. Of the three, only Raytheon will deliver both the aviation receiver card (GRAM-S/M) and the ground embedded receiver card (GB-GRAM). L-3 and Rockwell Collins will only deliver GB-GRAM cards.

The Rockwell Collins MUE team has experienced significant challenges developing the GB-GRAM-M receiver card. In April 2008 due to a proposed \$23M cost growth, a stop-work order was issued for the development of the GRAM-S/M. Later in 2008 at the CDR, the GPSW identified numerous critical findings, primarily with regards to information assurance requirements, that severely impacted Rockwell Collins's ability to maintain baseline cost and schedule. Subsequently, they have experienced significant cost growth in their original EAC primarily due to software/hardware integration, an unexpected issue with the memory volatility, and low yield rates on their wafer boards from a sub-contractor. Delivery has slipped from July 2009 to April 2010; cost overruns exceed \$9M and are expected to increase once the GRAM-S/M descope contract action is complete. Despite the challenges with maturing state-of-art GPS receiver technology, Rockwell Collins has made significant accomplishments to include completing CDR, acquiring and tracking live pseudo M-Code (in addition to legacy signals) with their Application Specific Integrated Circuit (ASIC) and, overall, maturing the critical technology elements (CTE) that are key for future production contracts. Rockwell Collins continues to work with their primary subcontractor, IBM, to resolve ASIC yield issues, but the root cause has not yet been identified.

The L-3 MUE team has also experienced challenges, but is confident in the product they will be delivering in April 2010 (slipping from July 2009). Late in 2008, L-3 reported to the GPSW that significant cost growth would be realized in order to meet contractual requirements. Following a thorough program review in January 2009, Government direction was given to descope the GRAM-S/M effort and these descope negotiations are still ongoing. CDR was held in July 2008, but due to numerous critical findings and insufficient time allocated to close them, review closure wasn't approved until July 2009. This resulted in additional unplanned work, increasing both cost and schedule. Additional sources of cost growth and schedule delays can be attributed to software and hardware integration activities and underestimating anti-spoofing software development time. Delivery has slipped from July 2009 to April 2010, cost overruns currently exceed \$25M and are expected to rise. Despite the challenges in developing M-Code GPS receiver technology, L-3 has significantly contributed to maturing the CTEs and is postured to deliver a functional GB-GRAM-M receiver card ready for security certification and integration.

The Raytheon MUE team has made great progress in developing and delivering both the GB-GRAM-M and GRAM-S/M cards, but they have also experienced similar cost overruns and schedule delays. Card delivery has slipped from July 2009 to March and April 2010 for the GB-GRAM-M and GRAM-S/M, respectively, and cost overruns are over \$9M. The primary sources of cost growth and schedule slip was due to severely underestimating the complexity of the anti-spoofing software development and software/hardware integration on the receiver cards. Despite these challenges, Raytheon has experienced many successes over the past two years including successful completion of CDR, developing an ASIC that acquires/tracks pseudo M-Code (and legacy codes), successful integration of the ASIC onto two different receiver cards (Ground Based and SAASM/M-code) and delivery of hardware samples (ASICs) to the Government.

The GPSW has well established relationships and support agreements with Sandia National Laboratories and Space & Naval Warfare (SPAWAR) Systems Center, San Diego, the organizations responsible for the Government independent testing and security evaluation of the MUE receiver cards. The security evaluation will determine the classification level appropriate for the cards prior to physical platform integration activities commencing. Upon integration completion, the platforms will be tested and evaluated in an operationally relevant environment, providing supporting data for TRL 6. The GPSW is coordinating with SAF/AQR for a Technology Readiness Assessment to begin one year prior to a request for MGUE MS-B approval.

In June 2009, an OSD(AT&L) sponsored Joint Assessment Team (JAT) convened to assess the GPS MUE technology development contracts and the follow-on MGUE development/production program. The JAT assessment is that MGUE should be placed in the Material Solution Analysis Phase (MSAP) (pre-Milestone A) with a MS A to be accomplished once the required 5000.02 documentation is complete. The OSD Director, Space and Intelligence Capability OIPT, reviewed the MGUE program at the Annual GPS Enterprise Review (AGER) held on January 29, 2010, and will prepare recommendations on the way forward.

There are no significant software issues at this time.

Threshold Breaches

Space & Control

APB Breaches		Explanation of Breach
Schedule	<input checked="" type="checkbox"/>	V5.5 was made the operational baseline on February 25, 2010. An AEP V5.5 Acquisition Program Baseline (APB) milestone completion letter is currently being staffed, awaiting AFPEO/SP and OSD/AT&L concurrence.
Performance	<input type="checkbox"/>	
Cost	RDT&E	GPS IIF 1st SV available for launch slipped because of several technical challenges leading to this point. Redesign/replacement effort to resolve L2 multipaction concerns was the final issue that drove the schedule breach. Subsequent issues with crosslink transponder and solar array risks have pushed the projected milestone completion to March 11, 2010.
	Procurement	
	MILCON	
	Acq O&M	
O&S Cost	<input type="checkbox"/>	
Unit Cost	PAUC	
	APUC	

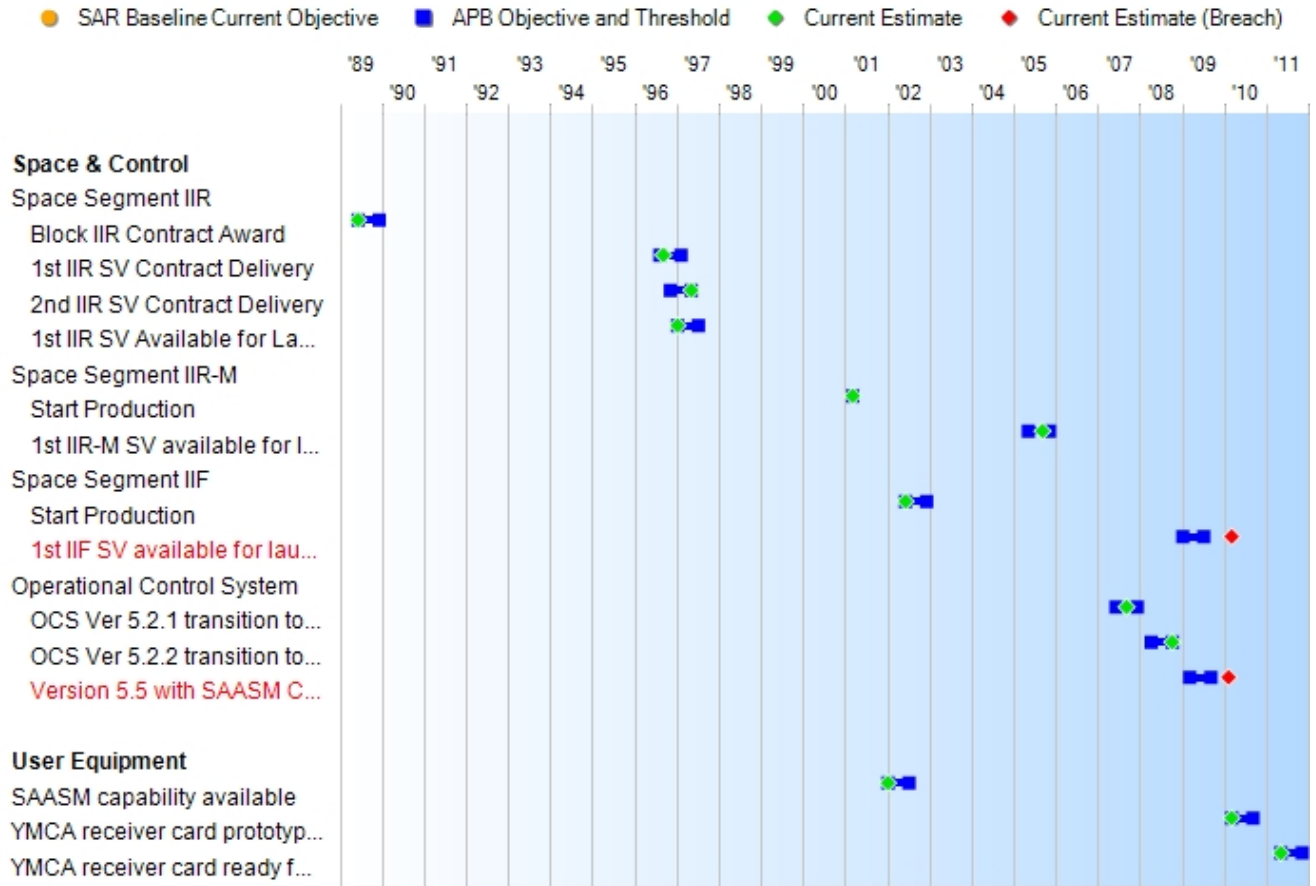
Nunn-McCurdy Breaches		
Current UCR Baseline		
	PAUC	None
	APUC	None
Original UCR Baseline		
	PAUC	None
	APUC	None

User Equipment

APB Breaches		
Schedule		<input type="checkbox"/>
Performance		<input type="checkbox"/>
Cost	RDT&E	<input type="checkbox"/>
	Procurement	<input type="checkbox"/>
	MILCON	<input type="checkbox"/>
	Acq O&M	<input type="checkbox"/>
O&S Cost		<input type="checkbox"/>
Unit Cost	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



Space & Control

Schedule Events				
Events	SAR Baseline Production Estimate	Current APB Production Objective/Threshold	Current Estimate	
Space Segment IIR				
Block IIR Contract Award	Jun 1989	Jun 1989	Dec 1989	Jun 1989
1st IIR SV Contract Delivery	Aug 1996	Aug 1996	Feb 1997	Sep 1996
2nd IIR SV Contract Delivery	Nov 1996	Nov 1996	May 1997	May 1997
1st IIR SV Available for Launch	Jan 1997	Jan 1997	Jul 1997	Jan 1997
Space Segment IIR-M				
Start Production	Mar 2001	Mar 2001	Mar 2001	Mar 2001
1st IIR-M SV available for launch	May 2003	May 2005	Nov 2005	Sep 2005
Space Segment IIF				
Start Production	Jun 2002	Jun 2002	Dec 2002	Jun 2002
1st IIF SV available for launch	Jun 2005	Jan 2009	Jul 2009	Mar 2010¹ (Ch-1)
Operational Control System				
OCS Ver 5.2.1 transition to operations with Accuracy Improvement and M-Code, L2C, and L5 test capability	N/A	Jun 2007	Dec 2007	Sep 2007
OCS Ver 5.2.2 transition to operations with OCS V5.2.1 and IIF capabilities	N/A	Apr 2008	Oct 2008	Oct 2008
Version 5.5 with SAASM Capability for IIR & IIF available for transition to operations	N/A	Mar 2009	Sep 2009	Feb 2010¹ (Ch-2)

¹ APB Breach

Change Explanations

(Ch-1) The current estimate went from January 2009 to March 2010 because of several technical challenges leading to this point. Redesign/replacement effort to resolve L2 multipaction concerns was the final issue that drove the schedule breach. Subsequent issues with crosslink transponder and solar array risks have pushed the projected milestone to March 11, 2010.

(Ch-2) The current estimate went from May 2009 to February 2010 because of additional fixes required to enable the system to meet operational stability. AEP V5.5 was made the operational baseline on February 25, 2010. An AEP V5.5 APB milestone completion letter is currently being staffed, awaiting AFPEO/SP and OSD/AT&L concurrence.

Acronyms and Abbreviations

AEP - Architectural Evolution Plan
DT&E - Development Test & Evaluation
ICD - Interface Control Document
IOC - Initial Operational Capability
IOT&E - Initial Operational Test and Evaluation
L2C - 2nd Civil Signal
L5 - 3rd Civil Signal
M-Code - Military Code
OA - Operational Assessment
OCS - Operational Control Segment
SAASM - Selective Availability/Anti-Spoofing Module
SV - Space Vehicle
UE - User Equipment
Ver - Version

User Equipment

Schedule Events				
Events	SAR Baseline Production Estimate	Current APB Production Objective/Threshold		Current Estimate
SAASM capability available	Jan 2002	Jan 2002	Jul 2002	Jan 2002
YMCA receiver card prototype complete	N/A	Mar 2010	Sep 2010	Mar 2010
YMCA receiver card ready for delivery to platform	N/A	May 2011	Nov 2011	May 2011

Change Explanations

None

Acronyms and Abbreviations

AEP - Architectural Evolution Plan
 DT&E - Development Test & Evaluation
 ICD - Interface Control Document
 IOC - Initial Operational Capability
 IOT&E - Initial Operational Test and Evaluation
 L2C - 2nd Civil Signal
 L5 - 3rd Civil Signal
 M-Code - Military Code
 OA - Operational Assessment
 SAASM - Selective Availability/Anti-Spoofing Module
 SV - Space Vehicle
 UE - User Equipment
 Ver - Version
 YMCA - Y-Code/M-Code coarse-acquisition

Performance

Space & Control

Performance Characteristics				
SAR Baseline Production Estimate	Current APB Production Objective/Threshold		Demonstrated Performance	Current Estimate
PPS System Perf				
Pos Accuracy				
2.1m H 4.0m V	1.3m H 2.6m V	17m H 35m V	TBD	2.8m H 5.8m V
Time Transfer				
10nsec	3.3ns	40ns	TBD	6.7ns
SPS System Perf				
Pos Accuracy				
1.0m H 4.0m V	1.3m H 2.6m V	17m H 35m V	TBD	2.8m H 5.8m V
Time Transfer				
40nsec	3.3ns	40ns	TBD	6.7ns
L5 Signal Power				
-154dBW	-154.0dB W	-154.9dB W	TBD	-154.3dB W
Flexible Power				
Max L1 P-Code				
N/A	-152.6dB W	-155.2dB W	TBD	-152.8dBW
Max L2 P-Code				
N/A	-152.9dB W	-156.6dB W	TBD	-154.0dBW
L2C Signal Power				
N/A	-158.5dB W	-160.0dB W	TBD	-158.0dBW

(Ch-1)

Requirements Reference

Operational Requirements Document (ORD) dated February 18, 2000

Change Explanations

(Ch-1) L5 signal power went from -154.9dB W to -154.3dbW. This increase is an update to more current performance based on more current data.

Acronyms and Abbreviations

dB - decibel

dBW - Decibel Watt (Decibels relative to one Watt)

m H - Meters Horizontal

m V - Meters Vertical

m/s - Meters per Second

ns - Nanoseconds

Pos - Position

PPS - Precise Positioning Service

SPS - Standard Positioning Service

User Equipment

Performance Characteristics			
SAR Baseline Production Estimate	Current APB Production Objective/Threshold	Demonstrated Performance	Current Estimate
PPS System Performance			
Time-To-First-Fix			
1 min	1 min	2 min	.8 Min
Pos Accuracy			
2.1m H 4.0m V	2.1m H 4.0m V	19m H 38m V	7.9m H 16.2m V
Velocity			
0.01m/s	0.01m/s	0.1 m/s	.01 m/s
Time Transfer			
10nsec	10 ns	44ns	10ns

Requirements Reference

Capability Development Document (CDD) dated December 15, 2009

Change Explanations

None

Acronyms and Abbreviations

dB - decibel
 dBW - Decibel Watt (Decibels relative to one Watt)
 m H - Meters Horizontal
 m V - Meters Vertical
 m/s - Meters per Second
 ns - Nanoseconds
 Pos - Position
 PPS - Precise Positioning Service
 SPS - Standard Positioning Service

Track to Budget

Space & Control

General Notes

This information was entered before Track To Budget was entered on a per subprogram basis. Consequently, the information for the program has been copied to both subprograms.

RDT&E

Appn	BA	PE
Air Force	3600 07	0305165F
	Project	Name
	3030	NAVSTAR GPS (Space and Control) Air Force
Air Force	3600 07	0305164F
	Project	Name
	3028	NAVSTAR GPS (Space and Control)

Procurement

Appn	BA	PE
Air Force	3010 05	0305165F
	Line Item	Name
	MGPS00	NAVSTAR GPS (User Equipment) Air Force
Air Force	3080 05	0305165F
	Line Item	Name
	836730	NAVSTAR GPS (Space and Control) Air Force
	836790	NAVSTAR GPS (Space and Control) Air Force

User Equipment

General Notes

This information was entered before Track To Budget was entered on a per subprogram basis. Consequently, the information for the program has been copied to both subprograms.

RDT&E

Appn	BA	PE
Air Force	3600 07	0305165F
	Project	Name
	3030	NAVSTAR GPS (Space and Control) Air Force
Air Force	3600 07	0305164F
	Project	Name
	3028	NAVSTAR GPS (Space and Control)

Procurement

Appn	BA	PE
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Air Force 3010 05 0305165F

Line Item	Name
-----------	------

MGPS00 NAVSTAR GPS (User Equipment) Air Force

Air Force 3080 05 0305165F

Line Item	Name
-----------	------

836730 NAVSTAR GPS (Space and Control) Air Force

836790 NAVSTAR GPS (Space and Control) Air Force

Cost and Funding

Cost Summary - Total Program

Total Acquisition Cost - Total Program							
Appropriation	BY 2000 \$M			BY 2000 \$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	2319.7	3650.4	--	3709.6	2430.2	3984.8	4074.2
Procurement	3493.7	4025.8	--	4091.2	3565.1	4259.0	4336.3
Flyaway	--	--	--	3446.5	--	--	3607.3
Recurring	--	--	--	3265.1	--	--	3420.6
Non Recurring	--	--	--	181.4	--	--	186.7
Support	--	--	--	644.7	--	--	729.0
Other Support	--	--	--	639.4	--	--	722.9
Initial Spares	--	--	--	5.3	--	--	6.1
MILCON	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
Total	5813.4	7676.2	N/A	7800.8	5995.3	8243.8	8410.5

Cost and Funding

Cost Summary - Space & Control

Total Acquisition Cost - Space & Control							
Appropriation	BY 2000 \$M			BY 2000 \$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	1776.2	2219.1	2441.0	2153.1	1829.3	2330.2	2253.0
Procurement	3239.4	3768.6	4145.5	3875.0	3291.6	3977.8	4108.4
Flyaway	--	--	--	3446.5	--	--	3607.3
Recurring	--	--	--	3265.1	--	--	3420.6
Non Recurring	--	--	--	181.4	--	--	186.7
Support	--	--	--	428.5	--	--	501.1
Other Support	--	--	--	423.2	--	--	495.0
Initial Spares	--	--	--	5.3	--	--	6.1
MILCON	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
Total	5015.6	5987.7	N/A	6028.1	5120.9	6308.0	6361.4

Total Quantity - Space & Control			
Quantity	SAR Baseline Production Estimate	Current APB Production	Current Estimate
RDT&E		0	0
Procurement		33	33
Total		33	33

Cost Summary - User Equipment

Total Acquisition Cost - User Equipment							
Appropriation	BY 2000 \$M			BY 2000 \$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	543.5	1431.3	1574.4	1556.5	600.9	1654.6	1821.2
Procurement	254.3	257.2	282.9	216.2	273.5	281.2	227.9
Flyaway	--	--	--	0.0	--	--	0.0
Recurring	--	--	--	0.0	--	--	0.0
Non Recurring	--	--	--	0.0	--	--	0.0
Support	--	--	--	216.2	--	--	227.9
Other Support	--	--	--	216.2	--	--	227.9
Initial Spares	--	--	--	0.0	--	--	0.0
MILCON	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
Total	797.8	1688.5	N/A	1772.7	874.4	1935.8	2049.1

Total Quantity - User Equipment			
Quantity	SAR Baseline Production Estimate	Current APB Production	Current Estimate
RDT&E		0	0
Procurement		0	0
Total		0	0

Cost and Funding

Funding Summary - Total Program

Appropriation Summary									
FY 2011 President's Budget / December 2009 SAR (TY\$ M)									
Appropriation	Prior	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	To Complete	Total
RDT&E	3134.8	188.4	200.4	156.0	135.1	128.8	130.7	0.0	4074.2
Procurement	3944.1	63.7	74.2	79.0	73.6	85.9	13.4	2.4	4336.3
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 2011 Total	7078.9	252.1	274.6	235.0	208.7	214.7	144.1	2.4	8410.5
PB 2009 Total	7020.5	266.9	275.7	181.8	182.7	193.1	191.1	88.0	8399.8
Delta	58.4	-14.8	-1.1	53.2	26.0	21.6	-47.0	-85.6	10.7

Cost and Funding

Funding Summary - Space & Control

Appropriation Summary									
FY 2011 President's Budget / December 2009 SAR (TY\$ M)									
Appropriation	Prior	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	To Complete	Total
RDT&E	2134.3	51.2	34.5	18.0	15.0	0.0	0.0	0.0	2253.0
Procurement	3729.5	60.5	72.3	77.0	71.6	83.8	11.3	2.4	4108.4
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 2011 Total	5863.8	111.7	106.8	95.0	86.6	83.8	11.3	2.4	6361.4
PB 2009 Total	5792.7	99.8	79.9	81.2	82.8	44.5	43.2	82.0	6306.1
Delta	71.1	11.9	26.9	13.8	3.8	39.3	-31.9	-79.6	55.3

Quantity Summary										
FY 2011 President's Budget / December 2009 SAR (TY\$ M)										
Quantity	Undistributed	Prior	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	To Complete	Total
Development	0	0	0	0	0	0	0	0	0	0
Production	0	33	0	0	0	0	0	0	0	33
PB 2011 Total	0	33	0	0	0	0	0	0	0	33
PB 2009 Total	0	33	0	0	0	0	0	0	0	33
Delta	0	0	0	0	0	0	0	0	0	0

Funding Summary - User Equipment

Appropriation Summary									
FY 2011 President's Budget / December 2009 SAR (TY\$ M)									
Appropriation	Prior	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	To Complete	Total
RDT&E	1000.5	137.2	165.9	138.0	120.1	128.8	130.7	0.0	1821.2
Procurement	214.6	3.2	1.9	2.0	2.0	2.1	2.1	0.0	227.9
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 2011 Total	1215.1	140.4	167.8	140.0	122.1	130.9	132.8	0.0	2049.1
PB 2009 Total	1227.8	167.1	195.8	100.6	99.9	148.6	147.9	6.0	2093.7
Delta	-12.7	-26.7	-28.0	39.4	22.2	-17.7	-15.1	-6.0	-44.6

Quantity Summary										
FY 2011 President's Budget / December 2009 SAR (TY\$ M)										
Quantity	Undistributed	Prior	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	To Complete	Total
Development	0	0	0	0	0	0	0	0	0	0
Production	0	0	0	0	0	0	0	0	0	0
PB 2011 Total	0	0	0	0	0	0	0	0	0	0
PB 2009 Total	0	0	0	0	0	0	0	0	0	0
Delta	0	0	0	0	0	0	0	0	0	0

Cost and Funding

Annual Funding By Appropriation - Space & Control

Annual Funding - Space & Control							
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
1986	--	--	--	--	--	--	1.2
1987	--	--	--	--	--	--	12.8
1988	--	--	--	--	--	--	13.8
1989	--	--	--	--	--	--	34.0
1990	--	--	--	--	--	--	22.2
1991	--	--	--	--	--	--	35.1
1992	--	--	--	--	--	--	36.2
1993	--	--	--	--	--	--	46.6
1994	--	--	--	--	--	--	24.1
1995	--	--	--	--	--	--	35.2
1996	--	--	--	--	--	--	43.2
1997	--	--	--	--	--	--	84.3
1998	--	--	--	--	--	--	96.7
1999	--	--	--	--	--	--	100.9
2000	--	--	--	--	--	--	93.2
2001	--	--	--	--	--	--	183.4
2002	--	--	--	--	--	--	183.6
2003	--	--	--	--	--	--	286.2
2004	--	--	--	--	--	--	132.5
2005	--	--	--	--	--	--	128.3
2006	--	--	--	--	--	--	174.5
2007	--	--	--	--	--	--	160.6
2008	--	--	--	--	--	--	119.1
2009	--	--	--	--	--	--	86.6
2010	--	--	--	--	--	--	51.2
2011	--	--	--	--	--	--	34.5
2012	--	--	--	--	--	--	18.0
2013	--	--	--	--	--	--	15.0
Subtotal	--	--	--	--	--	--	2253.0

Annual Funding - Space & Control							
3600 RDT&E Research, Development, Test, and Evaluation, Air Force							
Fiscal Year	Quantity	BY 2000 \$M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
1986	--	--	--	--	--	--	1.7
1987	--	--	--	--	--	--	16.9
1988	--	--	--	--	--	--	17.8
1989	--	--	--	--	--	--	41.8
1990	--	--	--	--	--	--	26.5
1991	--	--	--	--	--	--	40.4
1992	--	--	--	--	--	--	40.4
1993	--	--	--	--	--	--	51.0
1994	--	--	--	--	--	--	25.9
1995	--	--	--	--	--	--	37.2
1996	--	--	--	--	--	--	44.8
1997	--	--	--	--	--	--	86.3
1998	--	--	--	--	--	--	98.3
1999	--	--	--	--	--	--	101.5
2000	--	--	--	--	--	--	92.4
2001	--	--	--	--	--	--	179.3
2002	--	--	--	--	--	--	177.6
2003	--	--	--	--	--	--	273.1
2004	--	--	--	--	--	--	123.4
2005	--	--	--	--	--	--	116.5
2006	--	--	--	--	--	--	153.8
2007	--	--	--	--	--	--	137.9
2008	--	--	--	--	--	--	100.3
2009	--	--	--	--	--	--	72.0
2010	--	--	--	--	--	--	42.1
2011	--	--	--	--	--	--	28.0
2012	--	--	--	--	--	--	14.4
2013	--	--	--	--	--	--	11.8
Subtotal	--	--	--	--	--	--	2153.1

Annual Funding - Space & Control 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
1991	--	79.8	--	7.9	87.7	--	87.7
1992	4	155.3	--	7.7	163.0	--	163.0
1993	4	151.9	--	8.7	160.6	--	160.6
1994	4	160.4	--	7.9	168.3	--	168.3
1995	5	198.8	--	8.8	207.6	--	207.6
1996	4	136.7	--	8.3	145.0	--	145.0
1997	3	179.1	--	9.1	188.2	--	188.2
1998	3	168.7	--	9.0	177.7	--	177.7
1999	--	69.5	--	10.9	80.4	--	80.4
2000	--	105.9	--	13.5	119.4	--	119.4
2001	--	152.1	--	13.5	165.6	--	165.6
2002	--	138.6	--	11.9	150.5	--	150.5
2003	--	260.0	--	13.4	273.4	--	273.4
2004	--	302.7	--	13.6	316.3	--	316.3
2005	3	334.1	--	13.8	347.9	--	347.9
2006	3	333.1	--	14.3	347.4	--	347.4
2007	--	91.1	--	14.4	105.5	--	105.5
2008	--	126.8	68.7	--	195.5	32.3	227.8
2009	--	62.7	21.1	--	83.8	41.6	125.4
2010	--	8.5	16.3	--	24.8	28.1	52.9
2011	--	--	26.4	--	26.4	38.2	64.6
2012	--	--	26.2	--	26.2	43.0	69.2
2013	--	--	20.7	--	20.7	43.0	63.7
2014	--	--	25.4	--	25.4	58.0	83.4
2015	--	--	--	--	--	10.9	10.9
Subtotal	33	3215.8	204.8	186.7	3607.3	295.1	3902.4

Annual Funding - Space & Control 3020 Procurement Missile Procurement, Air Force								
Fiscal Year	Quantity	BY 2000 \$M						
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program	
1991	--	88.4	--	8.8	97.2	--	97.2	
1992	4	170.0	--	8.4	178.4	--	178.4	
1993	4	163.0	--	9.3	172.3	--	172.3	
1994	4	168.7	--	8.3	177.0	--	177.0	
1995	5	207.2	--	9.1	216.3	--	216.3	
1996	4	140.6	--	8.5	149.1	--	149.1	
1997	3	181.6	--	9.3	190.9	--	190.9	
1998	3	169.5	--	9.0	178.5	--	178.5	
1999	--	68.9	--	10.9	79.8	--	79.8	
2000	--	103.9	--	13.2	117.1	--	117.1	
2001	--	147.6	--	13.1	160.7	--	160.7	
2002	--	132.3	--	11.3	143.6	--	143.6	
2003	--	245.3	--	12.6	257.9	--	257.9	
2004	--	279.5	--	12.5	292.0	--	292.0	
2005	3	299.9	--	12.4	312.3	--	312.3	
2006	3	290.7	--	12.5	303.2	--	303.2	
2007	--	77.6	--	12.2	89.8	--	89.8	
2008	--	106.1	57.5	--	163.6	27.0	190.6	
2009	--	51.8	17.4	--	69.2	34.4	103.6	
2010	--	6.9	13.3	--	20.2	23.0	43.2	
2011	--	--	21.2	--	21.2	30.8	52.0	
2012	--	--	20.7	--	20.7	34.1	54.8	
2013	--	--	16.1	--	16.1	33.5	49.6	
2014	--	--	19.4	--	19.4	44.4	63.8	
2015	--	--	--	--	--	8.2	8.2	
Subtotal	33	3099.5	165.6	181.4	3446.5	235.4	3681.9	

Cost Quantity Information - Space & Control 3020 Procurement Missile Procurement, Air Force		
Fiscal Year	Quantity	End Item Recurring Flyaway (Aligned With Quantity) BY 2000 \$M
1991	--	--
1992	4	178.6
1993	4	178.6
1994	4	178.6
1995	5	223.3
1996	4	178.6
1997	3	519.8
1998	3	545.0
1999	--	--
2000	--	--
2001	--	--
2002	--	--
2003	--	--
2004	--	--
2005	3	545.0
2006	3	552.0
2007	--	--
2008	--	--
2009	--	--
2010	--	--
2011	--	--
2012	--	--
2013	--	--
2014	--	--
2015	--	--
Subtotal	33	3099.5

Annual Funding - Space & Control 3080 Procurement Other 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
1987	--	--	--	--	--	2.6	2.6
1988	--	--	--	--	--	8.3	8.3
1989	--	--	--	--	--	--	--
1990	--	--	--	--	--	--	--
1991	--	--	--	--	--	--	--
1992	--	--	--	--	--	--	--
1993	--	--	--	--	--	5.5	5.5
1994	--	--	--	--	--	4.2	4.2
1995	--	--	--	--	--	4.9	4.9
1996	--	--	--	--	--	6.7	6.7
1997	--	--	--	--	--	10.6	10.6
1998	--	--	--	--	--	9.2	9.2
1999	--	--	--	--	--	6.4	6.4
2000	--	--	--	--	--	6.6	6.6
2001	--	--	--	--	--	14.7	14.7
2002	--	--	--	--	--	10.3	10.3
2003	--	--	--	--	--	20.0	20.0
2004	--	--	--	--	--	13.4	13.4
2005	--	--	--	--	--	7.8	7.8
2006	--	--	--	--	--	13.5	13.5
2007	--	--	--	--	--	10.3	10.3
2008	--	--	--	--	--	11.2	11.2
2009	--	--	--	--	--	5.6	5.6
2010	--	--	--	--	--	7.6	7.6
2011	--	--	--	--	--	7.7	7.7
2012	--	--	--	--	--	7.8	7.8
2013	--	--	--	--	--	7.9	7.9
2014	--	--	--	--	--	0.4	0.4
2015	--	--	--	--	--	0.4	0.4
2016	--	--	--	--	--	2.4	2.4
Subtotal	--	--	--	--	--	206.0	206.0

Annual Funding - Space & Control 3080 Procurement Other Procurement, Air Force							
Fiscal Year	Quantity	BY 2000 \$M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
1987	--	--	--	--	--	3.3	3.3
1988	--	--	--	--	--	10.2	10.2
1989	--	--	--	--	--	--	--
1990	--	--	--	--	--	--	--
1991	--	--	--	--	--	--	--
1992	--	--	--	--	--	--	--
1993	--	--	--	--	--	5.9	5.9
1994	--	--	--	--	--	4.4	4.4
1995	--	--	--	--	--	5.1	5.1
1996	--	--	--	--	--	6.9	6.9
1997	--	--	--	--	--	10.7	10.7
1998	--	--	--	--	--	9.2	9.2
1999	--	--	--	--	--	6.3	6.3
2000	--	--	--	--	--	6.4	6.4
2001	--	--	--	--	--	14.1	14.1
2002	--	--	--	--	--	9.7	9.7
2003	--	--	--	--	--	19.1	19.1
2004	--	--	--	--	--	12.5	12.5
2005	--	--	--	--	--	7.1	7.1
2006	--	--	--	--	--	11.9	11.9
2007	--	--	--	--	--	8.9	8.9
2008	--	--	--	--	--	9.4	9.4
2009	--	--	--	--	--	4.7	4.7
2010	--	--	--	--	--	6.2	6.2
2011	--	--	--	--	--	6.3	6.3
2012	--	--	--	--	--	6.2	6.2
2013	--	--	--	--	--	6.2	6.2
2014	--	--	--	--	--	0.3	0.3
2015	--	--	--	--	--	0.3	0.3
2016	--	--	--	--	--	1.8	1.8
Subtotal	--	--	--	--	--	193.1	193.1

Annual Funding By Appropriation - User Equipment

Annual Funding - User Equipment							
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
1994	--	--	--	--	--	--	1.1
1995	--	--	--	--	--	--	1.5
1996	--	--	--	--	--	--	9.3
1997	--	--	--	--	--	--	24.2
1998	--	--	--	--	--	--	34.2
1999	--	--	--	--	--	--	36.1
2000	--	--	--	--	--	--	32.2
2001	--	--	--	--	--	--	41.4
2002	--	--	--	--	--	--	36.4
2003	--	--	--	--	--	--	67.5
2004	--	--	--	--	--	--	92.1
2005	--	--	--	--	--	--	91.0
2006	--	--	--	--	--	--	111.7
2007	--	--	--	--	--	--	130.3
2008	--	--	--	--	--	--	154.6
2009	--	--	--	--	--	--	121.8
2010	--	--	--	--	--	--	137.2
2011	--	--	--	--	--	--	165.9
2012	--	--	--	--	--	--	138.0
2013	--	--	--	--	--	--	120.1
2014	--	--	--	--	--	--	128.8
2015	--	--	--	--	--	--	130.7
Subtotal	--	--	--	--	--	--	1806.1

Annual Funding - User Equipment							
3600 RDT&E Research, Development, Test, and Evaluation, Air Force							
Fiscal Year	Quantity	BY 2000 \$M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
1994	--	--	--	--	--	--	1.2
1995	--	--	--	--	--	--	1.6
1996	--	--	--	--	--	--	9.6
1997	--	--	--	--	--	--	24.8
1998	--	--	--	--	--	--	34.8
1999	--	--	--	--	--	--	36.3
2000	--	--	--	--	--	--	31.9
2001	--	--	--	--	--	--	40.5
2002	--	--	--	--	--	--	35.2
2003	--	--	--	--	--	--	64.4
2004	--	--	--	--	--	--	85.7
2005	--	--	--	--	--	--	82.6
2006	--	--	--	--	--	--	98.4
2007	--	--	--	--	--	--	111.9
2008	--	--	--	--	--	--	130.2
2009	--	--	--	--	--	--	101.2
2010	--	--	--	--	--	--	112.8
2011	--	--	--	--	--	--	134.7
2012	--	--	--	--	--	--	110.2
2013	--	--	--	--	--	--	94.3
2014	--	--	--	--	--	--	99.5
2015	--	--	--	--	--	--	99.2
Subtotal	--	--	--	--	--	--	1541.0

Annual Funding - User Equipment							
0400 RDT&E Research, Development, Test, and Evaluation, Defense-Wide							
Fiscal Year	Quantity	TY \$M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
1996	--	--	--	--	--	--	6.7
1997	--	--	--	--	--	--	4.2
1998	--	--	--	--	--	--	3.9
1999	--	--	--	--	--	--	0.3
Subtotal	--	--	--	--	--	--	15.1

Annual Funding - User Equipment							
0400 RDT&E Research, Development, Test, and Evaluation, Defense-Wide							
Fiscal Year	Quantity	BY 2000 \$M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
1996	--	--	--	--	--	--	6.9
1997	--	--	--	--	--	--	4.3
1998	--	--	--	--	--	--	4.0
1999	--	--	--	--	--	--	0.3
Subtotal	--	--	--	--	--	--	15.5

Annual Funding - User Equipment 3010 Procurement Aircraft 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
1993	--	--	--	--	--	1.0	1.0
1994	--	--	--	--	--	0.5	0.5
1995	--	--	--	--	--	2.5	2.5
1996	--	--	--	--	--	18.9	18.9
1997	--	--	--	--	--	18.7	18.7
1998	--	--	--	--	--	22.8	22.8
1999	--	--	--	--	--	15.8	15.8
2000	--	--	--	--	--	17.3	17.3
2001	--	--	--	--	--	23.9	23.9
2002	--	--	--	--	--	15.0	15.0
2003	--	--	--	--	--	7.0	7.0
2004	--	--	--	--	--	11.0	11.0
2005	--	--	--	--	--	15.7	15.7
2006	--	--	--	--	--	3.6	3.6
2007	--	--	--	--	--	1.3	1.3
2008	--	--	--	--	--	3.6	3.6
Subtotal	--	--	--	--	--	178.6	178.6

Annual Funding - User Equipment 3010 Procurement Aircraft Procurement, Air Force							
Fiscal Year	Quantity	BY 2000 \$M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
1993	--	--	--	--	--	1.1	1.1
1994	--	--	--	--	--	0.5	0.5
1995	--	--	--	--	--	2.6	2.6
1996	--	--	--	--	--	19.3	19.3
1997	--	--	--	--	--	18.9	18.9
1998	--	--	--	--	--	22.9	22.9
1999	--	--	--	--	--	15.7	15.7
2000	--	--	--	--	--	16.9	16.9
2001	--	--	--	--	--	23.1	23.1
2002	--	--	--	--	--	14.3	14.3
2003	--	--	--	--	--	6.6	6.6
2004	--	--	--	--	--	10.1	10.1
2005	--	--	--	--	--	14.0	14.0
2006	--	--	--	--	--	3.1	3.1
2007	--	--	--	--	--	1.1	1.1
2008	--	--	--	--	--	3.0	3.0
Subtotal	--	--	--	--	--	173.2	173.2

Annual Funding - User Equipment 3080 Procurement Other 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
1997	--	--	--	--	--	0.1	0.1
1998	--	--	--	--	--	0.2	0.2
1999	--	--	--	--	--	0.6	0.6
2000	--	--	--	--	--	0.7	0.7
2001	--	--	--	--	--	0.6	0.6
2002	--	--	--	--	--	3.1	3.1
2003	--	--	--	--	--	2.9	2.9
2004	--	--	--	--	--	7.2	7.2
2005	--	--	--	--	--	7.2	7.2
2006	--	--	--	--	--	3.5	3.5
2007	--	--	--	--	--	1.9	1.9
2008	--	--	--	--	--	4.7	4.7
2009	--	--	--	--	--	3.3	3.3
2010	--	--	--	--	--	3.2	3.2
2011	--	--	--	--	--	1.9	1.9
2012	--	--	--	--	--	2.0	2.0
2013	--	--	--	--	--	2.0	2.0
2014	--	--	--	--	--	2.1	2.1
2015	--	--	--	--	--	2.1	2.1
Subtotal	--	--	--	--	--	49.3	49.3

Annual Funding - User Equipment 3080 Procurement Other Procurement, Air Force							
Fiscal Year	Quantity	BY 2000 \$M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
1997	--	--	--	--	--	0.1	0.1
1998	--	--	--	--	--	0.2	0.2
1999	--	--	--	--	--	0.6	0.6
2000	--	--	--	--	--	0.7	0.7
2001	--	--	--	--	--	0.6	0.6
2002	--	--	--	--	--	2.9	2.9
2003	--	--	--	--	--	2.8	2.8
2004	--	--	--	--	--	6.7	6.7
2005	--	--	--	--	--	6.5	6.5
2006	--	--	--	--	--	3.1	3.1
2007	--	--	--	--	--	1.6	1.6
2008	--	--	--	--	--	4.0	4.0
2009	--	--	--	--	--	2.7	2.7
2010	--	--	--	--	--	2.6	2.6
2011	--	--	--	--	--	1.5	1.5
2012	--	--	--	--	--	1.6	1.6
2013	--	--	--	--	--	1.6	1.6
2014	--	--	--	--	--	1.6	1.6
2015	--	--	--	--	--	1.6	1.6
Subtotal	--	--	--	--	--	43.0	43.0

Low Rate Initial Production

Space & Control

Low Rate Initial Production (LRIP) is not applicable for the Space and Control program.

User Equipment

Low Rate Initial Production (LRIP) is not applicable for the User Equipment program.

Foreign Military Sales

Space & Control

None

User Equipment

None

Nuclear Costs

Space & Control

None

User Equipment

None

Unit Cost

Space & Control

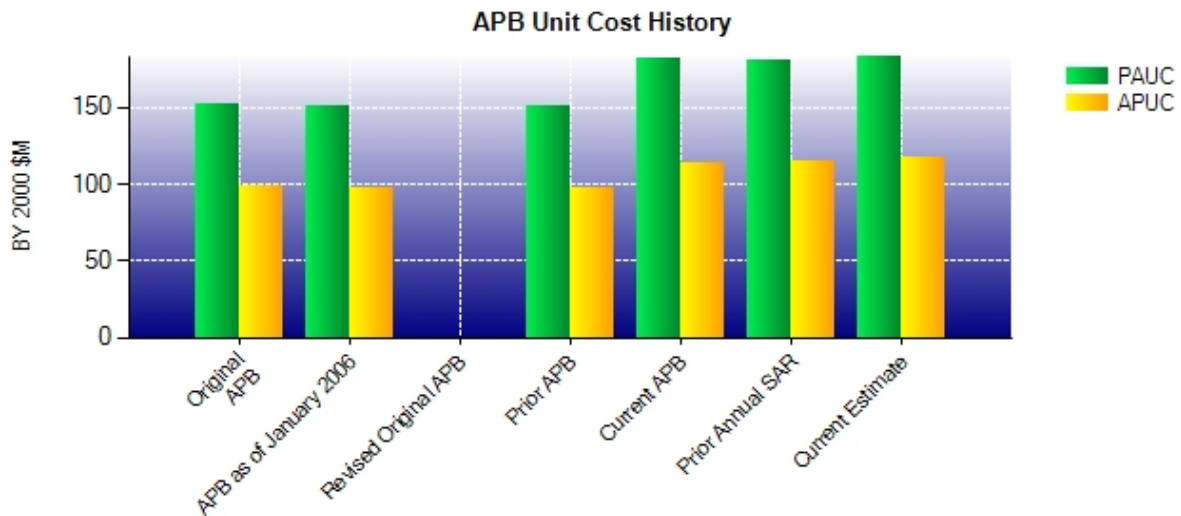
Unit Cost Report

Item	BY 2000 \$M	BY 2000 \$M	% Change
	Current UCR Baseline (Feb 2007 APB)	Current Estimate (Dec 2009 SAR)	
Program Acquisition Unit Cost			
Cost	5987.7	6028.1	
Quantity	33	33	
Unit Cost	181.445	182.670	+0.68
Average Procurement Unit Cost			
Cost	3768.6	3875.0	
Quantity	33	33	
Unit Cost	114.200	117.424	+2.82

Item	BY 2000 \$M	BY 2000 \$M	% Change
	Original UCR Baseline (Feb 2002 APB)	Current Estimate (Dec 2009 SAR)	
Program Acquisition Unit Cost			
Cost	5015.6	6028.1	
Quantity	33	33	
Unit Cost	151.988	182.670	+20.19
Average Procurement Unit Cost			
Cost	3239.4	3875.0	
Quantity	33	33	
Unit Cost	98.164	117.424	+19.62

Space & Control

Unit Cost History



Item	Date	BY 2000 \$M		TY \$M	
		PAUC	APUC	PAUC	APUC
Original APB	Feb 2002	151.988	98.164	155.179	99.745
APB as of January 2006	Feb 2003	150.500	97.811	154.914	101.105
Revised Original APB	N/A	N/A	N/A	N/A	N/A
Prior APB	Feb 2003	150.500	97.811	154.914	101.105
Current APB	Feb 2007	181.445	114.200	191.152	120.539
Prior Annual SAR	Dec 2007	180.700	114.342	191.094	121.312
Current Estimate	Dec 2009	182.670	117.424	192.770	124.497

SAR Unit Cost History

Current SAR Baseline to Current Estimate (TY \$M)									
Initial PAUC Production Estimate	Changes								PAUC Current Estimate
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
155.179	0.767	-0.071	0.252	13.194	9.564	0.000	13.885	37.591	192.770

Current SAR Baseline to Current Estimate (TY \$M)									
Initial APUC Production Estimate	Changes								APUC Current Estimate
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
99.745	0.506	-0.070	0.252	2.800	7.058	0.000	14.206	24.752	124.497

SAR Baseline History				
Item	SAR Planning Estimate	SAR Development Estimate	SAR Production Estimate	Current Estimate
Milestone I		N/A	N/A	N/A
Milestone II		N/A	N/A	N/A
Milestone III		N/A	N/A	Jun 1989
IOC		N/A	N/A	N/A
Total Cost (TY \$M)		N/A	N/A	5120.9
Total Quantity		N/A	N/A	33
PAUC		N/A	N/A	155.179

IOC - Initial Operational Capability (IOC) for military and civil codes (L2C) capabilities will be declared when there are sufficient GPS Block IIR-M and IIF SVs in orbit to provide at least one SV in view on a global basis at all times. Multiservice Operational Test and Evaluation (MOT&E) to support this IOC will be conducted consistent with the Test and Evaluation Master Plan (TEMP). Milestone III represents the Block IIR Contract Award milestone.

User Equipment

Unit Cost Report

Item	BY 2000 \$M	BY 2000 \$M	% Change
	Current UCR Baseline (Feb 2007 APB)	Current Estimate (Dec 2009 SAR)	

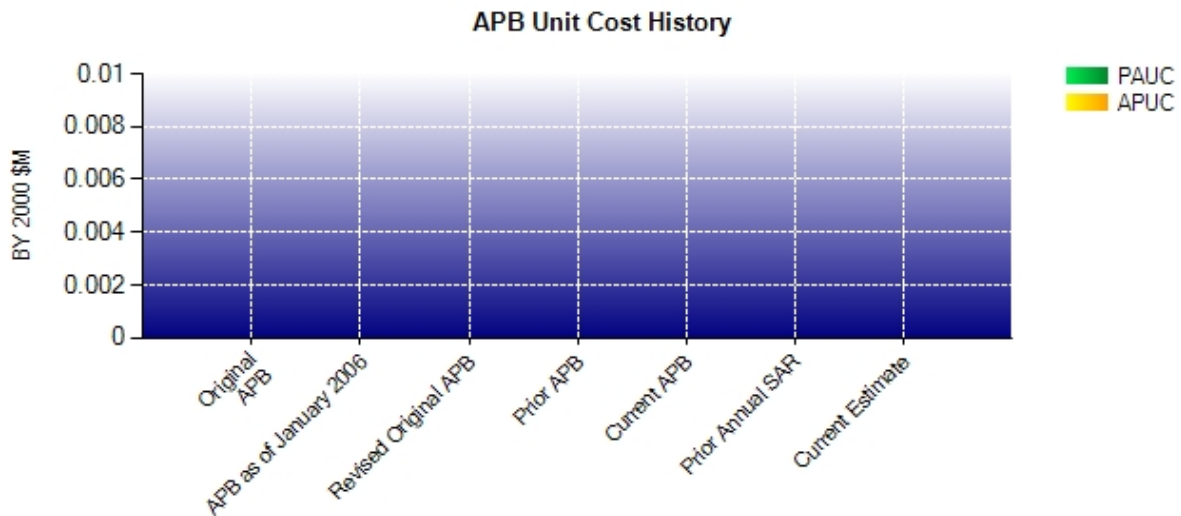
Program Acquisition Unit Cost			
Cost	1688.5	1772.7	
Quantity	0	0	
Unit Cost	--	--	--
Average Procurement Unit Cost			
Cost	257.2	216.2	
Quantity	0	0	
Unit Cost	--	--	--

Item	BY 2000 \$M	BY 2000 \$M	% Change
	Original UCR Baseline (Feb 2002 APB)	Current Estimate (Dec 2009 SAR)	

Program Acquisition Unit Cost			
Cost	797.8	1772.7	
Quantity	0	0	
Unit Cost	--	--	--
Average Procurement Unit Cost			
Cost	254.3	216.2	
Quantity	0	0	
Unit Cost	--	--	--

User Equipment

Unit Cost History



Item	Date	BY 2000 \$M		TY \$M	
		PAUC	APUC	PAUC	APUC
Original APB	Feb 2002	N/A	N/A	N/A	N/A
APB as of January 2006	Feb 2003	N/A	N/A	N/A	N/A
Revised Original APB	N/A	N/A	N/A	N/A	N/A
Prior APB	Feb 2003	N/A	N/A	N/A	N/A
Current APB	Feb 2007	N/A	N/A	N/A	N/A
Prior Annual SAR	Dec 2007	N/A	N/A	N/A	N/A
Current Estimate	Dec 2009	N/A	N/A	N/A	N/A

SAR Unit Cost History

Current SAR Baseline to Current Estimate (TY \$M)									
Initial PAUC Production Estimate	Changes								PAUC Current Estimate
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
0.000	--	--	--	--	--	--	--	--	0.000

A PAUC Unit Cost History is not available, since no Initial PAUC Estimate had been calculated due to a lack of defined quantities.

Current SAR Baseline to Current Estimate (TY \$M)										
Initial APUC Production Estimate	Changes								APUC Current Estimate	
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total		
0.000	--	--	--	--	--	--	--	--	--	0.000

An APUC Unit Cost History is not available, since no Initial APUC Estimate had been calculated due to a lack of defined quantities.

SAR Baseline History				
Item	SAR Planning Estimate	SAR Development Estimate	SAR Production Estimate	Current Estimate
Milestone I		N/A	N/A	N/A
Milestone II		N/A	N/A	N/A
Milestone III		N/A	N/A	N/A
IOC		N/A	Jan 2002	Jan 2002
Total Cost (TY \$M)			874.4	2049.1
Total Quantity			0	0
PAUC			N/A	N/A

Cost Variance**Space & Control**

Summary TY \$M				
Item	RDT&E	Procurement	MILCON	Total
SAR Baseline (Production Estimate)	1829.3	3291.6	--	5120.9
Previous Changes				
Economic	+12.5	+28.3	--	+40.8
Quantity	--	-2.3	--	-2.3
Schedule	--	+8.3	--	+8.3
Engineering	+343.0	+92.4	--	+435.4
Estimating	+128.6	+335.0	--	+463.6
Other	--	--	--	--
Support	-10.6	+250.0	--	+239.4
Subtotal	+473.5	+711.7	--	+1185.2
Current Changes				
Economic	-3.9	-11.6	--	-15.5
Quantity	--	--	--	--
Schedule	--	--	--	--
Engineering	--	--	--	--
Estimating	-45.9	-102.1	--	-148.0
Other	--	--	--	--
Support	--	+218.8	--	+218.8
Subtotal	-49.8	+105.1	--	+55.3
Total Changes	+423.7	+816.8	--	+1240.5
Current Estimate	2253.0	4108.4	--	6361.4

Summary BY 2000 \$M				
Item	RDT&E	Procurement	MILCON	Total
SAR Baseline (Production Estimate)	1776.2	3239.4	--	5015.6
Previous Changes				
Economic	--	--	--	--
Quantity	--	+20.0	--	+20.0
Schedule	--	--	--	--
Engineering	+320.7	+71.2	--	+391.9
Estimating	+103.3	+226.9	--	+330.2
Other	--	--	--	--
Support	-10.4	+215.8	--	+205.4
Subtotal	+413.6	+533.9	--	+947.5
Current Changes				
Economic	--	--	--	--
Quantity	--	--	--	--
Schedule	--	--	--	--
Engineering	--	--	--	--
Estimating	-36.7	-77.4	--	-114.1
Other	--	--	--	--
Support	--	+179.1	--	+179.1
Subtotal	-36.7	+101.7	--	+65.0
Total Changes	+376.9	+635.6	--	+1012.5
Current Estimate	2153.1	3875.0	--	6028.1

Previous Estimate: December 2007

RDT&E	\$M	
Current Change Explanations	Base Year	Then Year
Revised escalation indices (Economic)	N/A	-3.9
Adjustment for current and prior escalation (Estimating)	+1.0	+1.2
Congressional Reduction due to Revised Economic Assumptions and Contract Efficiencies (Estimating)	-2.3	-2.6
Reduction to pay for higher Air Force priorities (Estimating)	-0.9	-1.1
Below Threshold Reprogramming (BTR) for Space and Missile Systems Center (SMC) Acquisition Mission Support (AMS) (Estimating)	-0.8	-1.0
Zero-Balance Transfer (ZBT) out from Program Decision Memorandum (PDM) II (Estimating)	-2.8	-3.5
Reduction for payments other than fuel and pay (Estimating)	-1.0	-1.1
Federally Funded Research and Development Center (FFRDC) Reduction (Estimating)	-0.7	-0.8
ZBT realigned to GPS IIIA (Estimating)	-29.2	-37.0
RDT&E Subtotal	-36.7	-49.8

Procurement	\$M	
Current Change Explanations	Base Year	Then Year
Revised escalation indices. (Economic)	N/A	-11.6
Correction to align support and flyaway. (Subtotal)	0.0	0.0
(Estimating)	(+0.1)	(+0.1)
(Support)	(-0.1)	(-0.1)
Adjustment for current and prior escalation. (Estimating)	+1.7	+2.1
Below Threshold Reprogramming (BTR) for IIF SV 1-3 Cost Growth (Estimating)	+8.6	+10.0
BTR received for IIR launch support due to Delta delays (Estimating)	+17.8	+20.9
BTR for IIF SV-1 overrun (Estimating)	+31.6	+38.0
Omnibus plus up for GPS IIF SV1-3 (Estimating)	+8.4	+10.0
Reduction in Federally Funded Research and Development Center (FFRDC) (Estimating)	-0.5	-0.6
Revised Economic Assumptions (Estimating)	-1.5	-1.8
Decrease for Non-Pay Non-Fuel Purchases (Estimating)	-4.8	-6.1
Reclassification of funds from flyaway to support (Estimating)	-138.8	-174.7
Adjustment for current and prior escalation. (Support)	+0.1	+0.1
Increase in other support due to a correction of prior SAR errors of not correctly reporting support funding. Funding includes: FFRDC, on-orbit launch support, tech support and program support. (Support)	+235.4	+295.1
Decrease in other support due to OCS funding transitioning to OCX program in FY15 and out (Support)	-55.1	-74.6
Decrease in Initial Spares (Support)	-1.2	-1.7
Procurement Subtotal	+101.7	+105.1

Cost Variance

User Equipment

Summary TY \$M				
Item	RDT&E	Procurement	MILCON	Total
SAR Baseline (Production Estimate)	600.9	273.5	--	874.4
Previous Changes				
Economic	+16.0	+1.7	--	+17.7
Quantity	--	--	--	--
Schedule	--	--	--	--
Engineering	+277.8	--	--	+277.8
Estimating	+918.5	+0.4	--	+918.9
Other	--	--	--	--
Support	--	+4.9	--	+4.9
Subtotal	+1212.3	+7.0	--	+1219.3
Current Changes				
Economic	-20.7	-1.5	--	-22.2
Quantity	--	--	--	--
Schedule	--	--	--	--
Engineering	--	--	--	--
Estimating	+28.7	--	--	+28.7
Other	--	--	--	--
Support	--	-51.1	--	-51.1
Subtotal	+8.0	-52.6	--	-44.6
Total Changes	+1220.3	-45.6	--	+1174.7
Current Estimate	1821.2	227.9	--	2049.1

Summary BY 2000 \$M				
Item	RDT&E	Procurement	MILCON	Total
SAR Baseline (Production Estimate)	543.5	254.3	--	797.8
Previous Changes				
Economic	--	--	--	--
Quantity	--	--	--	--
Schedule	--	--	--	--
Engineering	+251.6	--	--	+251.6
Estimating	+739.4	--	--	+739.4
Other	--	--	--	--
Support	--	+1.8	--	+1.8
Subtotal	+991.0	+1.8	--	+992.8
Current Changes				
Economic	--	--	--	--
Quantity	--	--	--	--
Schedule	--	--	--	--
Engineering	--	--	--	--
Estimating	+22.0	--	--	+22.0
Other	--	--	--	--
Support	--	-39.9	--	-39.9
Subtotal	+22.0	-39.9	--	-17.9
Total Changes	+1013.0	-38.1	--	+974.9
Current Estimate	1556.5	216.2	--	1772.7

Previous Estimate: December 2007

RDT&E	\$M	
Current Change Explanations	Base Year	Then Year
Revised escalation indices. (Economic)	N/A	-20.7
Adjustment for current and prior escalation. (Estimating)	+2.3	+2.7
Contractor Reduction from Office of the Secretary of Defense (OSD) Resource Management Directive (RMD) (Estimating)	-19.5	-24.7
Program Decision Memorandum (PDM) III (Estimating)	+46.1	+58.0
PDM II Compliance (Estimating)	+58.0	+74.0
Air Force Offset (Estimating)	-51.1	-63.9
Congressional Program Reduction (Estimating)	-0.3	-0.4
Congressional General Reduction (Estimating)	-4.5	-5.3
Reduction for payments other than fuel and pay (Estimating)	-4.0	-5.2
RMD Contractor to Civilian Conversion (Estimating)	-0.9	-1.1
Reduction to pay for higher Air Force priorities (Estimating)	-3.1	-4.1
Correction for 2007 SAR overestimation (Estimating)	-1.0	-1.3
RDT&E Subtotal	+22.0	+8.0

Procurement	\$M	
Current Change Explanations	Base Year	Then Year
Revised escalation indices (Economic)	N/A	-1.5
Adjustment for current and prior escalation (Support)	+0.3	+0.3
Transitioning of programs and funds to Warner Robbins (Support)	-41.1	-52.8
Increase in Other Support (Air Force) (Support)	+0.9	+1.4
Procurement Subtotal	-39.9	-52.6

Contracts

Contract Identification

Appropriation: RDT&E
Contract Name: GPS IIF OCS/MOSC DEV
Contractor: Boeing Navigation Systems
Contractor Location: Seal Beach, CA
Contract Number: F04701-96-C-0025/1
Contract Type: Cost Plus Award Fee (CPAF)
Award Date: April 22, 1996
Definitization Date: April 22, 1996

Contract Price								
Initial Contract Price (\$M)			Current Contract Price (\$M)			Estimated Price At Completion (\$M)		
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager	
13.9	N/A	0	779.3	N/A	0	912.3	918.8	

Target Price Change Explanation

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to

Contract Variance			
Item	Cost Variance		Schedule Variance
Cumulative Variances To Date (12/17/2009)	-14.6		-0.2
Previous Cumulative Variances	-14.0		-6.8
Net Change	-0.6		+6.6

Cost and Schedule Variance Explanations

General Contract Variance Explanation

The net unfavorable cost variance of \$0.6 million is due to higher than expected costs to complete Architectural Evolution Plan (AEP) V5.2.2, AEP V5.5, Launch Early/Orbit, Anomaly Resolution and Disposal Operations (LADO) Release 2, program-level System Engineering and Integration Testing (SEIT) Support, and Block IIF Combined System Test (CST).

The net favorable schedule variance of \$6.6 million was due to the successful transition of Architecture Evolution Plan (AEP) V5.2.2, AEP V5.5, and LADO in 2008 and 2009. The program is now >95% complete and only a final delta CST with GPS IIF-1 and completion of an L-Band test set accounts for the remaining schedule variance. All remaining work, program-level system engineering, Control Segment program management and business management, is on a level-of-effort basis.

Notes

The contract information above pertains to the Operational Control Segment (OCS) Research, Development, Test, and Evaluation (RDT&E) Cost Plus Award Fee (CPAF) development efforts.

The Contractor established an Over Target Baseline (OTB) value of \$49.5 million in January 2003. An unfavorable cost variance of \$25.2 million and schedule variance of \$6.8 million were reset to zero. The contractor established an additional OTB amount of \$56.0 million in November 2006 for a total OTB amount of \$105.5 million. The AEP V5.5 Replan REA recognized that part of the Nov 2006 OTB amount also include V5.5 work, and the OTB was adjusted downward by \$1.6M.

The current contract target price is \$779.3 million, compared to the initial contract target price of \$13.9 million. At the time the GPS Block IIF contract was signed (April 1996), the Government only envisioned needing to add the GPS Block IIF functionality to a completed distributed OCS architecture. However, completion of the distributed AEP under the GPS OCS Support Contract (GOSC) became significantly more difficult than originally expected. In 1999, the government decided to alleviate Government Furnished Equipment (GFE) concerns and provide for a more efficient acquisition of AEP by transferring the responsibilities from GOSC to the Single Prime Initiative (SPI). Because of funding limitations, completion of the original GPS IIF functionality was stretched out into three different operational versions. Cumulatively, these actions raised the contract target price from \$13.9 million to \$416 million.

In August 2000, Congress authorized the modernization of the entire GPS system - adding two new civil signals (L2C and L5) and a new military signal (M-Code). In order to ensure the Control Segment could command and control the new signals, several subsequent modifications were added to provide the capability to build uploads for all the new signals and to modernize the monitor stations at the various remote sites. In April 2003, during the Control Segment Integrated Baseline Review, the government found there was additional work that needed to be placed on contract for AEP and LADO. Cumulatively, these actions raised the contract target price from \$416 million to \$835 million. Several additional minor contract changes then raised the total contract target price to \$839.4 million.

Development of AEP Version 6 and 7 were impacted by a 2003 funding cut (e.g., PBD 703). The GPS Wing worked with the contractor to replan the effort. Revised schedules showed that the AEP V6 would be delivered almost at the same time as Block I of the next-generation GPS Operational Control Segment (OCX) and AEP V7 would be delivered in the Block II timeframe. In order to avoid any duplication of effort, the GPS Wing recommended descoping these requirements from the GPS IIF contract. OSD concurred. The V6/V7 descope decreased the contract target price to \$760.5 million and originally recognized \$22M in cost. This was subsequently adjusted to \$19.6M during definitization. Recognition of the need for a new AEP crew trainer (e.g., the Positional Training Emulator) increased the target contract price by \$14.9 million and settlement of the AEP V5.5 REA increase cost by \$25.8M and increased fee by \$3.4M. Several minor contract actions then raised the contract target price to \$779.3 million.

Estimated Price at Completion Comment:

The Boeing Company has incorporated an updated Estimate at Complete (EAC) which reflects the approved 4th Quarter 2009 EAC submitted in The Boeing Company corporate EAC process. The contractor's EAC includes contractor & Government risk items for insufficient program-level system engineering support for interface control documents working groups (ICWGs), unplanned delays to GPS IIF system sell-off, and potential contract close out costs. The most likely EAC is \$825.4 million and results in an Estimated Price at Completion of \$912.3 million plus the target profit/fee.

Contract Identification

Appropriation: Procurement
Contract Name: GPS IIF Sat Production
Contractor: Boeing Integrated Defense
Contractor Location: Huntington Beach, CA
Contract Number: F04701-96-C-0025/3
Contract Type: Cost Plus Award Fee (CPAF)
Award Date: October 24, 2002
Definitization Date: October 24, 2002

Contract Price							
Initial Contract Price (\$M)			Current Contract Price (\$M)			Estimated Price At Completion (\$M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
157.6	N/A	0	194.7	N/A	3	626.0	645.0

Target Price Change Explanation

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to

Contract Variance		
Item	Cost Variance	Schedule Variance
Cumulative Variances To Date (11/25/2009)	-146.7	-20.6
Previous Cumulative Variances	-39.7	-19.4
Net Change	-107.0	-1.2

Cost and Schedule Variance Explanations**General Contract Variance Explanation**

The net unfavorable cost variance (CV) of \$107 million since the December 2007 SAR was primarily driven by Assembly, Integration & Test (AIT) issues, Navigation Payload test failures and re-designs, and additional Systems Engineering and Integration (SE&I) support. AIT variances due to inefficiencies associated with late unit swap outs driven by delivery delays within the Nav Payload, unplanned work in the Thermal Vacuum Chamber, and System Test Equipment set-up and checkout delays; L2/L3/L5 anomaly analysis and continued technical challenges have caused a significant CV on the Navigation Payload. The on-going tests of the Crane Power Supply, ITT socket connectors not passing pin force retention test, as well as the on-going investigation of cracked RF Cross-Strap boards and coaxial cables have also caused a significant negative CV in the Navigation Payload. SE&I negative CV was the result of additional resources being added to support pathfinder activities, integration and test activities, Requirement & Verification closure items as well as an increase in Quality Assurance and Configuration Management support of system level activities.

The net unfavorable schedule variance of \$1.2 million since the December 2007 SAR is primarily due to the Assembly, Integration & Test schedule delays which are principally driven by late space vehicle hardware deliveries.

Notes

The contract information above pertains to the Block IIF Modernization 3020 Cost Plus Award Fee ("CPAF") Production efforts for the first three space vehicles.

In December 2007, Boeing notified the government of their intention to implement an Over Target Baseline (OTB) for SV1-3 production. With the governments concurrence the "partial" OTB (for schedule only) was implement in Jan 2008. This \$47.6M adjustment to schedule variance brought the Program Adjustment total to \$262.4M.

The new Budget at Completion (BAC) value after the March 2008 replan was \$434M which fully budgeted the contractor's estimate to complete. The new program management baseline was validated with an Integrated Baseline Review (IBR) in June 2008, though the government remained concerned about the schedule and allocation of management reserve due to additional schedule erosion that was reported after December 2007.

Since the June 2008 IBR, Boeing has submitted quarterly Estimate at Completion (EAC) increases and the Government has updated its independent EAC to account for these changes. As of November 2009, the contractor is reporting an EAC of \$626M against a negotiated cost of \$172.3M. The Government will update its current Program Manager (PM) EAC by mid-Mar 2010 to reflect anticipated cost at completion.

Contract Identification

Appropriation: Procurement
Contract Name: GPS IIF Sat Production SVs 4-6
Contractor: Boeing Integrated Defense
Contractor Location: Huntington Beach, CA
Contract Number: F04701-96-C-0025/4
Contract Type: Firm Fixed Price (FFP)
Award Date: April 22, 1996
Definitization Date: September 05, 2003

Contract Price								
Initial Contract Price (\$M)			Current Contract Price (\$M)			Estimated Price At Completion (\$M)		
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager	
145.8	N/A	3	165.2	N/A	3	165.2	165.2	

Target Price Change Explanation

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to

Cost and Schedule Variance Explanations

Cost and Schedule Variance reporting is not required on this (FFP) contract.

Notes

Note: This contract is a firm fixed price contract and thus has no EV data.

Contract Comments:

The Government is responsible for 70% of any costs over the Target cost (and the contractor pays 30%) up to the ceiling price.

This is the first time that this contract is being reported.

Contract Identification

Appropriation: Procurement
Contract Name: GPS IIF Sat Production SVs 7-9
Contractor: Boeing Integrated Defense
Contractor Location: Huntington Beach, CA
Contract Number: F04701-96-C-0025/5
Contract Type: Firm Fixed Price (FFP)
Award Date: April 22, 1996
Definitization Date: October 31, 2003

Contract Price								
Initial Contract Price (\$M)			Current Contract Price (\$M)			Estimated Price At Completion (\$M)		
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager	
174.3	N/A	3	190.0	N/A	3	190.0	190.0	

Target Price Change Explanation

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to

Cost and Schedule Variance Explanations

Cost and Schedule Variance reporting is not required on this (FFP) contract.

Notes

Note: This contract is a firm fixed price contract and thus has no EV data.

Contract Comments:

The Government is responsible for 70% of any costs over the Target cost (and the contractor pays 30%) up to the ceiling price.

This is the first time that this contract is being reported.

Contract Identification

Appropriation: RDT&E
Contract Name: GPS IIF Sat Production SVs 10-12
Contractor: Boeing Integrated Defense
Contractor Location: Huntington Beach, CA
Contract Number: F04701-96-C-0025/6
Contract Type: Firm Fixed Price (FFP)
Award Date: April 22, 1996
Definitization Date: June 22, 2003

Contract Price							
Initial Contract Price (\$M)			Current Contract Price (\$M)			Estimated Price At Completion (\$M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
166.8	N/A	3	181.6	N/A	3	181.6	181.6

Target Price Change Explanation

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to

Contract Variance		
Item	Cost Variance	Schedule Variance
Cumulative Variances To Date	0.0	0.0
Previous Cumulative Variances	--	--
Net Change	+0.0	+0.0

Cost and Schedule Variance Explanations

Notes

Note: This contract is a firm fixed price contract and thus has no EV data.

Contract Comments:

The Government is responsible for 70% of any costs over the Target cost (and the contractor pays 30%) up to the ceiling price.

This is the first time that this contract is being reported.

Contract Identification

Appropriation: RDT&E
Contract Name: Rockwell Collins
Contractor: Rockwell Collins
Contractor Location: Cedar Rapids, IA
Contract Number: FA8807-06-C-0001
Contract Type: Cost Plus Award Fee (CPAF)
Award Date: May 26, 2006
Definitization Date: May 26, 2006

Contract Price								
Initial Contract Price (\$M)			Current Contract Price (\$M)			Estimated Price At Completion (\$M)		
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager	
80.1	N/A	N/A	82.7	N/A	N/A	88.9	92.4	

Target Price Change Explanation

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to

Contract Variance		
Item	Cost Variance	Schedule Variance
Cumulative Variances To Date (12/20/2009)	-9.4	-0.9
Previous Cumulative Variances	--	--
Net Change	-9.4	-0.9

Cost and Schedule Variance Explanations

General Contract Variance Explanation

The net unfavorable schedule variance of \$.9M is due to contractor's re-baseline in July 2008 and descope of GRAM S/M form factor, lack of proper Software resources to complete work on time and issues with memory cell on their commercial chip (CHEETAH), ASIC delay issues.

The net unfavorable cost variance of \$9.4M is due to Integration Spiral difficulty and more than expected CDR action items, integration testing effort, ASIC delay issues, and software rework effort due to missing system design detail, integration testing effort greater than planned, and increases in Systems Engineering / Program Management staff to manage technical challenges in integration.

Notes**Contractor's Estimated Cost:**

The Contractor's Estimate At Completion increased from \$79.1M to \$88.9M because the new EAC factor risk analysis, an additional four months of schedule required for the delivery of the card, the integration Spiral difficulties, and the post-CDR activities being greater than planned and opportunity cost into the calculation. In addition, there were unplanned risk reduction expenses on ASIC checkout and S/W design escapes.

Program Manager's (PM's) Estimated Cost:

The Government's Most Likely EAC went from \$79.1M to \$92.4M because the new EAC factor risk analysis, incorporation of addition risk associated with the potential schedule delay, and potential software growth.

Contract Identification

Appropriation: RDT&E
Contract Name: L-3
Contractor: L-3 Interstate Electronics Corporation
Contractor Location: Anaheim, CA
Contract Number: FA8807-06-C-0003
Contract Type: Cost Plus Award Fee (CPAF)
Award Date: May 26, 2006
Definitization Date: May 26, 2006

Contract Price							
Initial Contract Price (\$M)			Current Contract Price (\$M)			Estimated Price At Completion (\$M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
74.5	N/A	N/A	91.2	N/A	N/A	94.9	95.3

Target Price Change Explanation

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to

Contract Variance		
Item	Cost Variance	Schedule Variance
Cumulative Variances To Date (12/20/2009)	-3.1	-1.1
Previous Cumulative Variances	--	--
Net Change	-3.1	-1.1

Cost and Schedule Variance Explanations**General Contract Variance Explanation**

The net unfavorable schedule variance of \$1.1M was a result of performance/efficiency indices dropping drastically after Critical Design Review (CDR) kick-off, also an attributing factor was an Over Target Baseline (OTB) that was identified by the contractor and implemented in February 2009's CPR, completing a task(s) behind schedule.

The net unfavorable cost variance of \$3.1M was caused by more than expected open action items from CDR, also an attributing factor was an OTB that was identified by the contractor and implemented in Feb 09's CPR and software integration tasks more complex than planned, retention of software engineers to complete tasks.

Notes**Contractor's Estimated Cost:**

The Contractor's Estimate At Completion increased from \$69M to \$94.9M due to more than expected open action items from CDR, software Formal Qualification Testing (FQT) and system level integration issues and delays and Anti-Tamper V&V Plan Refinement task being more complex than planned, greater than planned effort for DCMA EV Surveillance support, IT support, Lab/Security support, and an MCP Code software implementation task. They were on contract for delivery in June 2009, now expecting April 2010.

Program Manager's (PM's) Estimated Cost:

The Government's Most Likely Estimate at Complete (EAC) went from \$74.4M to \$95.3M because of incorporation of latest contractor factored risks into the government EAC and potential for additional software growth.

Contract Identification

Appropriation: RDT&E
Contract Name: Raytheon
Contractor: Raytheon Intelligence and Information Systems
Contractor Location: El Segundo, CA
Contract Number: FA8807-06-C-0004
Contract Type: Cost Plus Award Fee (CPAF)
Award Date: May 26, 2006
Definitization Date: May 26, 2006

Contract Price							
Initial Contract Price (\$M)			Current Contract Price (\$M)			Estimated Price At Completion (\$M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
102.4	N/A	N/A	105.8	N/A	N/A	104.3	106.2

Target Price Change Explanation

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to

Contract Variance		
Item	Cost Variance	Schedule Variance
Cumulative Variances To Date (12/20/2009)	-8.4	-2.7
Previous Cumulative Variances	--	--
Net Change	-8.4	-2.7

Cost and Schedule Variance Explanations**General Contract Variance Explanation**

The net unfavorable schedule variance of \$2.7M was caused by Digital Application Specific Integrated Circuit (ASIC) design, the IBM ASIC chip, under estimation of work required for PRONAV and complications associated with the RF ASIC and Digital ASIC development is due to digital ASIC design taking longer than planned and current Hardware and Software integration delays caused by complexity issues and resource limitations and a slip in their next major milestone, TRR (Technical Readiness Review) from September 2009 to January 2010.

The net unfavorable cost variance of \$8.4M was caused by more than expected open action items from CDR, under estimation of work required for PRONAV and complications associated with the RF ASIC and Digital ASIC development, under estimation of work required for PRONAV, additional support and complexities in ASIC test board software integration, pre-TRR activities, Anti-Spoofing Software and unanticipated Overrun Proposal preparation.

Notes**Contractor's Estimated Cost:**

The Contractor's Estimate at Completion (EAC) increased from \$95M to \$104.3M due to ASIC design effort cost, including severely underestimating schedule/cost of anti-spoofing software development and integration as well as realizing risks with ASIC hardware integration with software. They were on contract for delivery in June 2009, now expecting April/May 2010.

Program Manager's (PM's) Estimated Cost:

The Government's Most Likely EAC increased from \$95.0M to \$106.2M due to EAC factor risk analysis into the calculation, delays in verifying dry run task for Production Module and delays in software integration driven by late Production Module deliveries and late engineering module hardware deliveries and additional support and complexities in production module layout, verification test plans, ASIC test board S/W integration, pre-Test Readiness Review (TRR) activities, AS S/W, and checkout/test of the Radio Frequency (RF) front end of the Eng. Module.

Deliveries and Expenditures

Space & Control

Deliveries				
Delivered to Date	Planned to Date	Actual to Date	Total Quantity	Percent Delivered
Development	0	0	0	--
Production	33	21	33	63.64%
Total Program Quantity Delivered	33	21	33	63.64%

Expended and Appropriated (TY \$M)			
Total Acquisition Cost	6361.4	Years Appropriated	25
Expended to Date	4676.9	Percent Years Appropriated	80.65%
Percent Expended	73.52%	Appropriated to Date	5975.5
Total Funding Years	31	Percent Appropriated	93.93%

User Equipment

Deliveries				
Delivered to Date	Planned to Date	Actual to Date	Total Quantity	Percent Delivered
Development	0	0	0	--
Production	0	0	0	--
Total Program Quantity Delivered	0	0	0	--

Expended and Appropriated (TY \$M)			
Total Acquisition Cost	2049.1	Years Appropriated	18
Expended to Date	1136.2	Percent Years Appropriated	78.26%
Percent Expended	55.45%	Appropriated to Date	1355.5
Total Funding Years	23	Percent Appropriated	66.15%

The Modernized User Equipment (MUE) expenditures to date have decreased due to the fact that last SAR, the MUE program was reporting expenditures for the entire UE program. Because the MUE program does not include legacy UE items, the current expenditures no longer include legacy expenditures and only include those from the MUE program.

Operating and Support Cost

Space & Control

Assumptions and Ground Rules

Operating and Support (O&S) costs include all costs of operating, maintaining, and supporting the Navstar Global Positioning System (GPS) spacecraft from the dedicated Master Control Station (MCS) located at Schriever Air Force Base (AFB), CO and the alternate MCS (AMCS) located at Vandenberg AFB, CA. Also included are the costs of operating, maintaining, and supporting four dedicated GPS Ground Antennas (GAs) (located at Cape Canaveral Air Force Station (AFS), FL, Kwajalein Atoll, the Ascension Islands, and Diego Garcia); and five monitor stations (located at Schriever AFB, Maui, HI, Kwajalein Atoll, the Ascension Islands, and Diego Garcia). Satellite operations at the MCS include mission planning, mission payload operations, and monitoring of satellite state of health. GAs transmit navigation data uploads and commands to the GPS spacecraft, and receive telemetry data from the spacecraft. Monitor stations receive mission payload data and transfer this data to the MCS to ensure spacecraft are operating as desired. These costs do not include the unallocated costs associated with the shared use of remote tracking stations, which are programmed and funded by the Air Force Satellite Control Network and the Consolidated Space Operations Center program elements. The Sustaining support cost includes the Material Support Division (MSD) direct costs. Costs reflect updates as of January 25, 2010.

The total O&S costs for the Space and Control system are not calculable in a manner that is relevant for comparison to other space systems, as each element within the system has a different life cycle and associated upgrade, repair, and/or replacement sustainment cycle.

An accurate cost for the Legacy portion is not available. For this, we will put N/A in lieu of a number.

Cost Estimate Reference:

None

Sustainment Strategy:

None

Antecedent Information:

None

Unitized O&S Costs BY2000 \$M		
Cost Element	Space & Control Avg Annual Cost For 24-Sat Constellation	Block I/II Legacy (Antecedent) Avg Annual Cost For 24-Sat Constellation
Mission Pay & Allowance	19.400	19.200
Unit Level Consumption	--	--
Intermediate Maintenance	--	--
Depot Maintenance	19.400	16.800
Contractor Support	4.800	2.400
Sustaining Support	4.800	2.400
Indirect	--	--
Other	--	--
Total	48.400	40.800

Unitized Cost Comments:

None

Item	Total O&S Cost \$M			
	Space & Control			Block I/II Legacy (Antecedent)
	Current Production APB Objective/Threshold	Current Estimate		
Base Year	N/A	N/A	409.0	N/A
Then Year	N/A	N/A	511.3	N/A

Total O&S Cost Comment

Funding went down from last SAR due to an overall decrease in funding

Disposal Estimate Details

Date of Estimate:

Source of Estimate:

Disposal/Demilitarization Total Cost (BY 2000 \$M):

User Equipment

Assumptions and Ground Rules

The Modernized User Equipment (UE) program will not procure user equipment, but will instead develop UE enabling technologies, demonstrate solutions, deliver prototypes, and assist platform managers.

Cost Estimate Reference:

None

Sustainment Strategy:

None

Antecedent Information:

None

Unitized O&S Costs BY2000 \$M			
Cost Element	User Equipment	Antecedent System (Antecedent)	
Mission Pay & Allowance	--	--	--
Unit Level Consumption	--	--	--
Intermediate Maintenance	--	--	--
Depot Maintenance	--	--	--
Contractor Support	--	--	--
Sustaining Support	--	--	--
Indirect	--	--	--
Other	--	--	--
Total	--	--	--

Unitized Cost Comments:

None

Item	Total O&S Cost \$M			
	User Equipment		Antecedent System (Antecedent)	
	Current Production APB Objective/Threshold	Current Estimate		
Base Year	N/A	N/A	N/A	N/A
Then Year	N/A	N/A	N/A	N/A

Total O&S Cost Comment

None

Disposal Estimate Details

Date of Estimate:

Source of Estimate:

Disposal/Demilitarization Total Cost (BY 2000 \$M):