Exhibit R-2, RDT&E Budget Item Justification: PB 2014 Air Force												DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 3600: *Research, Development, Test & Evaluation, Air Force* BA 7: *Operational Systems Development*					R-1 ITEM NOMENCLATURE PE 0603423F: *Global Positioning System III - Operational Control Segment*							
COST ($ in Millions)	**All Prior Years**	**FY 2012**	**FY 2013#**	**FY 2014 Base**	**FY 2014 OCO ##**	**FY 2014 Total**	**FY 2015**	**FY 2016**	**FY 2017**	**FY 2018**	**Cost To Complete**	**Total Cost**
Total Program Element	931.727	352.023	371.595	383.500	-	383.500	303.500	285.400	214.500	119.300	130.534	3,092.079
67A021: *OCX*	931.727	352.023	307.785	321.990	-	321.990	239.560	223.040	150.850	54.504	38.100	2,619.579
67A025: *GPS Enterprise Integrator*	0.000	0.000	63.810	61.510	-	61.510	63.940	62.360	63.650	64.796	92.434	472.500
MDAP/MAIS Code(s): 292,456												

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

The Global Positioning System (GPS) is a space based positioning, navigation and timing distribution system, which operates through weather and electromagnetic environments (jamming, spoofing, etc.). GPS supports both civil and military users in air, space, sea and land operations. GPS is a satellite-based radio navigation system that serves military and civil users worldwide. GPS users process satellite signals to determine accurate position, velocity and time. GPS must comply with 10 United States Code (USC) sec 2281 which requires that the Secretary of Defense ensures the continued sustainment and operation of GPS for military and civilian purposes and 51 USC sec 50112, which requires that GPS complies with certain standards and facilitates international cooperation.

This Program Element (PE) funds the Research & Development for the GPS next generation operational control system (OCX) and the GPS Enterprise Integrator. This includes the advanced concept development, systems analysis, modernized control segment development, training simulators, integrated logistics support products, and developmental test resources, and systems engineering required to meet the government's obligations to the international, military and civil communities, and system requirements verification. OCX acquisition was established to 1) provide command and control of legacy and GPS III satellites, 2) incorporate situational awareness to support Navigation Warfare and signal monitoring, and 3) enable mission capability upgrades to support warfighter effects-based approach to operations. GPS Enterprise Integrator is responsible for architecture and system definition (the analysis and definition, management, maintenance, and evolution of the GPS Enterprise requirements and interface technical documents) as well as for the planning, execution, and fielding of the Enterprise.

OCX funds will support efforts such as engineering studies and analyses, architectural engineering studies, trade studies, technology needs forecasting, modernization initiatives, systems engineering, system development, test and evaluation efforts and mission operations in support of upgrades and product improvements for military and civil applications necessary to support efforts to protect U.S. military and allies' use of GPS. Additionally, funds will ensure efforts to meet current and future Joint Requirements Oversight Council approved required capabilities.

GPS supports both military and civil users in air, space, sea and land operations. The GPS Enterprise consists of Space, Ground Control, Nuclear Detonation Detection System (NDS) and User Equipment Segments. The government is responsible for the integration of the GPS Segments such that they provide worldwide GPS capability to support the warfighter and over a billion national security, civil, allied, and commercial GPS users. The GPS Enterprise Integrator project includes the efforts associated with the Government's prime contract tasks necessary to accomplish this critical integrating function with the entire GPS user community. The

Exhibit R-2, RDT&E Budget Item Justification: PB 2014 Air Force	DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 3600: *Research, Development, Test & Evaluation, Air Force* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0603423F: *Global Positioning System III - Operational Control Segment*

Enterprise Integrator maintains the GPS current architecture and system definition, controls and validates interfaces, ensures compatibility of Generation II and III systems, and develops/manages plans for execution and fielding of the GPS Enterprise. Further, the Integrator provides modeling, simulation and technical analyses of impacts for Government-directed enterprise-level trades among the GPS segments leading to definition, management, maintenance, and evolution of the GPS Enterprise requirements and interface technical documents to build and ensure the integrity of the enterprise technical baseline, and perform system requirements verification.

In addition, the GPS Enterprise Integrator project funds the technical evolution, risk reduction, enterprise-level testing and delivery of all GPS Enterprise capabilities. Examples for Generation II include electronic protection and additional civil signals; for Generation III, additional anti-jamming protection. To accomplish this, the GPS Enterprise Integrator delivers Test and Verification capabilities, Requirements and Interface Management, and Systems Integration support across the Space, Control, and User Segments. In this capacity, the Enterprise Integrator is responsible for managing this cross-program work to provide these and other capabilities. GPS Enterprise Integrator's analyses guide government decisions to ensure efficient and effective synchronization and execution across all Generation II and III GPS programs. For Enterprise-wide integration to be successful, the Integrator: works with the GPS and NDS prime contractor teams to develop plans for early risk reduction System Integration Demonstrations to ensure system interfaces and functionality meet user and system requirements; ensures all equipment and documentation is ready when needed; integrates and analyzes enterprise schedules, conducts formal test and verification, including Requirement Verification Plans; and System Test Plans and Procedures. GPS Enterprise Integrator performs all these efforts across all GPS programs in all acquisition phases. The government owns the Enterprise system requirements and integration, and highly leverages the Enterprise Integrator team to eliminate the need to fund a development prime contractor to perform these functions. This enhances the government control, oversight and program accountability.

B. Program Change Summary ($ in Millions)	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total
Previous President's Budget	362.823	371.595	393.742	-	393.742
Current President's Budget	352.023	371.595	383.500	-	383.500
Total Adjustments	-10.800	0.000	-10.242	-	-10.242
• Congressional General Reductions	-	0.000			
• Congressional Directed Reductions	-	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	-	0.000			
• Congressional Directed Transfers	-	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	-10.800	0.000			
• Other Adjustments	0.000	0.000	-10.242	-	-10.242

Change Summary Explanation

FY12: -$10.800M for SBIR

FY14: -$10.242M to align OCX funding to approved Service Cost Position (SCP)

Exhibit R-2A, RDT&E Project Justification: PB 2014 Air Force			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 3600: *Research, Development, Test & Evaluation, Air Force* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0603423F: *Global Positioning System III - Operational Control Segment*	PROJECT 67A021: *OCX*	

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
67A021: *OCX*	931.727	352.023	307.785	321.990	-	321.990	239.560	223.040	150.850	54.504	38.100	2,619.579
Quantity of RDT&E Articles		0	0	0		0	0	0	0	0		

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

The Global Positioning System (GPS) is a space based positioning, navigation and timing distribution system, which operates through weather and electromagnetic environments (jamming, spoofing, etc.). This project funds the research and development for the GPS next generation operational control system (OCX). This includes, but is not limited to, advanced concept development, systems engineering and analysis, modernized control segment development, training simulators, integrated logistics support products, and developmental test resources.

The OCX acquisition was established to accomplish the following three objectives: 1) provide command and control of legacy and GPS III satellites, 2) incorporate situational awareness to support Navigation warfare and signal monitoring, and 3) enable mission capability upgrades to support warfighter effects-based approach to operations. OCX funds will support efforts such as engineering studies and analyses, architectural engineering studies, trade studies, technology needs forecasting, systems engineering, system development, test and evaluation efforts and mission operations in support of upgrades and product improvements for military and civil applications necessary to support efforts to protect U.S. military and allies' use of GPS. Additionally, funds will ensure efforts to meet current and future Joint Requirements Oversight Council approved required capabilities. Funds will support technology development and systems development efforts.

OCX Block 0 is the GPS satellite command and control system intended to conduct Launch and Early Orbit (LEO) operations and the checkout of all GPS III satellites. OCX Block 0 is a subset of OCX Block 1.

OCX Block 1 fields the operational capability to control all legacy satellites and signals (L1C/A, L1P(Y), L2P(Y)) as well as the GPS III satellites and the L2C and L5 signals. It also fully meets information assurance/cyber defense requirements.

OCX Block 2 fields the operational capability to control L1M and L2M (M-Code), and L1C signals.

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

B. Accomplishments/Planned Programs ($ in Millions)	FY 2012	FY 2013	FY 2014
Title: OCX Development	283.994	259.921	273.535

Exhibit R-2A, RDT&E Project Justification: PB 2014 Air Force		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 3600: *Research, Development, Test & Evaluation, Air Force* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0603423F: *Global Positioning System III - Operational Control Segment*	PROJECT 67A021: *OCX*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2012	FY 2013	FY 2014
Description: Development of the GPS next generation operational control system to launch and operate GPS II and GPS III constellation and provide a robust Information Assurance system. ***FY 2012 Accomplishments:*** Developed approximately 50% of the OCX Block 1 software code to include the core infrastructure, initial GPS-III command and control, initial PNT mission code, and critical interfaces. Completed environmental and performance testing of OCX Monitoring Station Receiver Equipment Engineering Design Unit (EDU). Initiated development of information assurance controls required for OCX Block 0 and OCX Block 1. ***FY 2013 Plans:*** Develop and test the information assurance controls required for OCX Block 0 and OCX Block 1. Develop GPS-III launch and checkout capability. Continue systems engineering and development of command and control for GPS II satellites, legacy signals, and modernized signals. ***FY 2014 Plans:*** Certify and accept OCX Block 0 for launch and checkout operations of GPS-III satellites. Develop command and control for GPS II satellites, legacy signals, and the modernized aviation safety of life signal (L5). Continue development of remaining civil and military modernized signals (L1C and M-code).			
Title: Technical Support ***Description:*** Development of the Standardized Space Trainer (SST) to provide GPS III operator training. Automation study to examine the feasibility of implementing control segment automation to increase command and control efficiencies. Facilities upgrades for Control Stations and associated equipment and servers. ***FY 2012 Accomplishments:*** Developed Request for Proposal (RFP) and initiated contracting process to place SST on contract. Study effort initiated to evaluate potential opportunities to reduce operational crew sizes, including through additional automation. Facility upgrades and hardware installations underway to prepare for OCX testing and transition to include the Master Control Station (MCS) at Schriever AFB and the Alternate Master Control Station (AMCS) at Vandenberg AFB. ***FY 2013 Plans:*** Place SST on contract and initiate development and testing efforts to support GPS-III operator training for OCX Block 1. Complete minimized operational crew size study, including automation. Continue work on the facility upgrades and hardware installation to prepare for OCX testing and transition to include the Master Control Station and Alternate Master Control Station. ***FY 2014 Plans:***	19.732	15.539	15.872

Exhibit R-2A, RDT&E Project Justification: PB 2014 Air Force		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 3600: *Research, Development, Test & Evaluation, Air Force* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0603423F: *Global Positioning System III - Operational Control Segment*	PROJECT 67A021: *OCX*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2012	FY 2013	FY 2014
Continue efforts on the SST and develop demonstration capabilities. Continue work on the facility upgrades to include the Master Control Station and Alternate Master Control Station. Upgrade the operations and server facilities.			
Title: Management Services ***Description:*** Program Management Administration, technical and directorate support to the OCX program. ***FY 2012 Accomplishments:*** Provided scheduling, budget analysis, cost estimating, technical and Directorate support for the OCX program. ***FY 2013 Plans:*** Continue to provide scheduling, budget analysis, cost estimating, technical and Directorate support for the OCX program. ***FY 2014 Plans:*** Continue to provide scheduling, budget analysis, cost estimating, technical and Directorate support for the OCX program.	48.297	32.325	32.583
Accomplishments/Planned Programs Subtotals	352.023	307.785	321.990

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
• RDTE: BA07: PE 0305265F: *GPS III Space Segment*	442.697	317.197	218.588		218.588	213.772	160.307	75.311	76.666	307.210	1,811.748
• MPAF: BA05: Line Item # GPSIII: *GPS III TOA*	494.055	492.910	476.650		476.650	527.843	641.558	886.095	902.164	4,737.885	9,159.160
• DOT: *DOT (FAA) Civil Funding*	28.200	27.800	9.500		9.500	2.800	0.400	0.400	0.000	0.000	69.100

Remarks

DOT (FAA) funding in FY 2014 - 2017 is TBD.

D. Acquisition Strategy

The Air Force is pursuing a "Block" approach to the next generation GPS control segment (OCX) to rapidly respond to warfighter capability requirements. The Block acquisition strategy approach follows the "Back to Basics" space program acquisition philosophy which focuses on mission success and on-time delivery. Additionally, the strategy calls for capability (i.e. better signal maintainability (Digital Waveform Generation (DWG)), Unified S-Band (USB), Search and Rescue (SAR) GPS, and near-real time C2) on-ramps for the follow on contract for GPS III SVs 09 and beyond which will require updates to the OCX ground segment. This will ensure enterprise synchronization across space and ground segments.

Exhibit R-2A, RDT&E Project Justification: PB 2014 Air Force		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 3600: *Research, Development, Test & Evaluation, Air Force* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0603423F: *Global Positioning System III - Operational Control Segment*	PROJECT 67A021: *OCX*

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Air Force		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 3600: *Research, Development, Test & Evaluation, Air Force* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0603423F: *Global Positioning System III - Operational Control Segment*	PROJECT 67A021: *OCX*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Phase B OCX Block 1 & 2 Development	C/CPAF	Raytheon:Aurora, CO	473.837	283.994	Nov 2011	259.921	Jan 2013	273.535	Dec 2013	-		273.535	552.645	1,843.932	
SE&I	C/CPAF	SAIC:Huntington Beach, CA	19.128	10.121	Nov 2011	6.600	Mar 2013	6.831	Dec 2013	-		6.831	18.722	61.402	
Modernization/SE & Technical Support	Various	Various:Various,	39.408	9.611	Nov 2011	3.939	Apr 2013	4.041	Jan 2014	-		4.041	0.000	56.999	
Standard Space Trainer	C/CPAF	Sonalyst, Inc:Waterford, CT	0.000	0.000		5.000	Mar 2013	5.000	Jan 2014	-		5.000	22.500	32.500	
OCS transition to OCX	C/CPAF	Boeing:Seal Beach, CA	2.889	0.000		0.000		0.000		-		0.000	0.000	2.889	
Completed Activities	Various	Various:,	286.104	0.000		0.000		0.000		-		0.000	0.000	286.104	
		Subtotal	821.366	303.726		275.460		289.407		0.000		289.407	593.867	2,283.826	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000	0.000

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000	0.000

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
FFRDC (Aerospace - PMA)	RO	Aerospace:El Segundo, CA	43.777	37.224	Jan 2012	16.104	Jan 2013	15.924	Jan 2014	-		15.924	64.373	177.402	

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Air Force		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 3600: *Research, Development, Test & Evaluation, Air Force* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0603423F: *Global Positioning System III - Operational Control Segment*	PROJECT 67A021: *OCX*

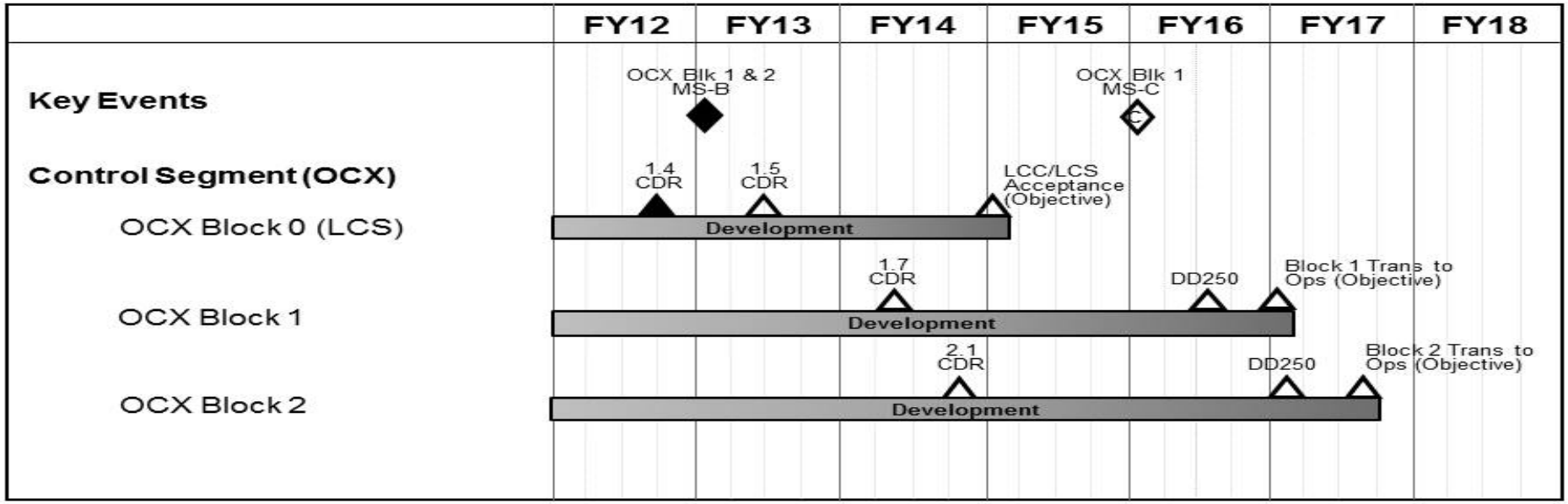
Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
FFRDC (MITRE - PMA)	C/CPFF	MITRE:Bedford, MA	0.000	0.000		5.817	Apr 2013	6.050	Jan 2014	-		6.050	20.224	32.091	
FFRDC (SEI - PMA)	C/CPFF	SEI:Pittsburgh, PA	0.000	0.000		1.030	Mar 2013	1.071	Feb 2014	-		1.071	1.500	3.601	
Program Management Administration (PMA)	Various	Various:,	66.584	11.073	Jan 2012	9.374	Apr 2013	9.538	Feb 2014	-		9.538	26.090	122.659	
		Subtotal	110.361	48.297		32.325		32.583		0.000		32.583	112.187	335.753	

	All Prior Years	FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	931.727	352.023		307.785		321.990		0.000		321.990	706.054	2,619.579	

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2014 Air Force		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 3600: *Research, Development, Test & Evaluation, Air Force* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0603423F: *Global Positioning System III - Operational Control Segment*	PROJECT 67A021: *OCX*



CDR – Critical Design Review
LCC – Launch & Checkout Capability
LCS – Launch & Checkout System

Exhibit R-4A, RDT&E Schedule Details: PB 2014 Air Force		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 3600: *Research, Development, Test & Evaluation, Air Force* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0603423F: *Global Positioning System III - Operational Control Segment*	**PROJECT** 67A021: *OCX*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
OCX Blocks 1 & 2 MS B	1	2013	1	2013
Software Iteration 1.4 Incremental Critical Design Review (CDR)	4	2012	4	2012
Software Iteration 1.5 Incremental CDR	3	2013	3	2013
Software Iteration 1.7 Incremental CDR	2	2014	2	2014
Software Iteration 2.1 Incremental CDR	4	2014	4	2014

Exhibit R-2A, RDT&E Project Justification: PB 2014 Air Force			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 3600: *Research, Development, Test & Evaluation, Air Force* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0603423F: *Global Positioning System III - Operational Control Segment*	PROJECT 67A025: *GPS Enterprise Integrator*	

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
67A025: *GPS Enterprise Integrator*	0.000	0.000	63.810	61.510	-	61.510	63.940	62.360	63.650	64.796	92.434	472.500
Quantity of RDT&E Articles		0	0	0		0	0	0	0	0		

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

The Global Positioning System (GPS) is a space based positioning, navigation and timing distribution system, which operates through weather and electromagnetic environments (jamming, spoofing, etc.). GPS supports both civil and military users in air, space, sea and land operations. GPS provides a worldwide capability that supports over a million warfighters and over a billion national security, civil, allied, and commercial GPS users. The GPS Enterprise consists of four segments: Space, Ground Control, Nuclear Detonation Detection System (NDS) and User Equipment Segments. Each segment has prime contracts to provide specific segment products (eg. spacecraft, master control system, receivers & antennas). The government, not a development contractor, is responsible for the integration of the GPS Segments and relies upon GPS Enterprise Integrator contracts to supply specific expertise and sufficient resources to successfully allocate the segment requirements, integrate the segment products, and verify that system requirements are met.

The GPS Enterprise Integration project includes the efforts of the FFRDC and SE&I contract tasks necessary to accomplish this critical integrating function. The Enterprise Integration maintains the GPS current architecture and system definition, controls and validates interfaces, ensures compatibility of previous, current, and future GPS segment products (Generation II and III systems), and develops/manages plans for execution and fielding of the GPS Enterprise. Further, the Integrator provides modeling, simulation and technical analyses of impacts for Government-directed enterprise level trades among the GPS segments leading to definition, management, maintenance, and evolution of the GPS Enterprise requirements and interface technical documents to build and ensure the integrity of the enterprise technical baseline.

In addition, the GPS Enterprise Integration project funds the technical evolution, risk reduction, enterprise-level testing and delivery of all GPS Enterprise capabilities. Examples for Generation II include electronic protection and additional civil signals; for Generation III, additional anti-jamming protection. To accomplish this, the GPS Enterprise Integrator delivers Test and Verification capabilities, Requirements and Interface Management, and Systems Integration support across the Space, Control and User Segments. In this capacity, the Enterprise Integrator is responsible for managing this cross-program work to provide these and other capabilities. GPS Enterprise Integrator's analyses guide government decisions to ensure efficient and effective synchronization and execution across all Generation II and III GPS programs. For Enterprise-wide integration to be successful, the Integrator: works with the GPS and NDS prime contractor teams to develop plans for early risk reduction System Integration Demonstrations to ensure system interfaces and functionality meet user and system requirements; ensures all equipment and documentation is ready when needed; integrates and analyzes enterprise schedules, conducts formal test and verification, including Requirement Verification Plans; and System Test Plans and Procedures. GPS Enterprise Integrator performs all these efforts across all GPS programs in all acquisition phases. The government owns

Exhibit R-2A, RDT&E Project Justification: PB 2014 Air Force		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 3600: *Research, Development, Test & Evaluation, Air Force* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0603423F: *Global Positioning System III - Operational Control Segment*	**PROJECT** 67A025: *GPS Enterprise Integrator*

the Enterprise system requirements and integration, and highly leverages the Enterprise Integrator team to eliminate the need to fund a development prime contractor to perform these functions. This enhances the government control, oversight and program accountability.

This program is in Budget Activity 7, Operational System Development because this budget activity includes development efforts to support operational systems.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2012	FY 2013	FY 2014
Title: GPS Enterprise Integrator	0.000	63.810	61.510
Description: The integration and configuration control of all elements of the GPS system (space/ground/user equipment) with one another in support of both military and civil users ***FY 2013 Plans:*** Accomplish system definition and system integration across the GPS Enterprise, including Generation II and III (space, control, and user segments). Conduct OCX-GPS III risk reduction demos for interface and functionality validation which prove hardware and software interface compatibility. Results evolve specifications and interface control documents (ICDs) in support of GPS III Space Modernization Initiatives (SMI) and Military GPS User Equipment (MGUE). Enable GPS III SV09+ production decision approval through validation of system performance via the GPS Non-Satellite Testbed (GNST). ***FY 2014 Plans:*** Accomplish system definition and system integration across the GPS Enterprise, including Generation II and III (space, control, and user segments). Reduce enterprise risk through early integration testing of interfaces, including the actual first delivery of the OCX ground software and hardware and GPS III space vehicle. Results prove specifications and interfaces in support of GPS III Space Modernization Initiatives (SMI) and Military GPS User Equipment (MGUE) Critical Design Review (CDR).			
Accomplishments/Planned Programs Subtotals	0.000	63.810	61.510

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
• RDTE: BA04: PE 0305164F: *NAVSTAR Global Positioning System (User Equipment) (Space)*	0.000	96.840	137.233		137.233	158.614	153.769	157.390	98.840	30.360	833.046

Exhibit R-2A, RDT&E Project Justification: PB 2014 Air Force		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 3600: *Research, Development, Test & Evaluation, Air Force* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0603423F: *Global Positioning System III - Operational Control Segment*	PROJECT 67A025: *GPS Enterprise Integrator*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
• RDTE: BA07: PE 0305164F: *NAVSTAR Global Positioning System (User Equipment) (Space)*	125.935	29.621	0.000		0.000	0.000	0.000	0.000	0.000	0.000	155.556
• RDTE: BA07: PE 0305165F: *NAVSTAR Global Positioning System (Space and Control Segments)*	16.820	14.335	0.000		0.000	0.000	0.000	0.000	0.000	0.000	31.155
• RDTE: BA07: PE 0305265F: *GPS III Space Segment*	442.697	317.197	218.588		218.588	213.772	160.307	75.311	76.666	307.210	1,811.748
• MPAF: BA05: Line Item # MGPS00: *Global Positioning System (Space)*	107.689	58.147	55.997		55.997	20.262	8.642	0.000	0.000	0.000	250.737
• MPAF: BA05: Line Item # GPSIII: *GPS III TOA*	494.055	492.910	476.650		476.650	527.843	641.558	886.095	902.164	4,737.885	9,159.160
• OPAF: BA03: Line Item # 836790: *Space Mods Space*	4.399	7.353	11.431		11.431	12.768	12.026	2.000	0.000	0.000	49.977

Remarks

D. Acquisition Strategy

In accordance with a "back to basics" acquisition approach and exercise of strong oversight of development contractors, the Air Force will exercise complete ownership of the architecture, system definition, and integration of the GPS space, ground, and user segments. This complex inter-segment integration is tradtionally performed by a prime contractor under a systems development contract. To elminiate the need to fund a development prime contractor to perform these functions, the government leverages systems engineering and integration expertise from both Federally Funded Research and Development Center (FFRDC) contractors and a Systems Engineering & Integration (SE&I) contractor. GPS Enterprise Integrator function of the SE&I contractor is currently funded within this Program Element (PE) for the Next Generation Operational Control System (OCX). SE&I services were procured in 2007 through a full and open competition. GPS Enterprise Integrator function is now being tracked as a separate Project (67A025) within this PE.

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Air Force			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 3600: *Research, Development, Test & Evaluation, Air Force* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0603423F: *Global Positioning System III - Operational Control Segment*	PROJECT 67A025: *GPS Enterprise Integrator*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
GPS Enterprise Integrator	C/CPAF	SAIC:El Segundo, CA	0.000	0.000		43.412	Feb 2013	40.940	Dec 2013	-		40.940	246.620	330.972	
		Subtotal	0.000	0.000		43.412		40.940		0.000		40.940	246.620	330.972	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000	0.000

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000	0.000

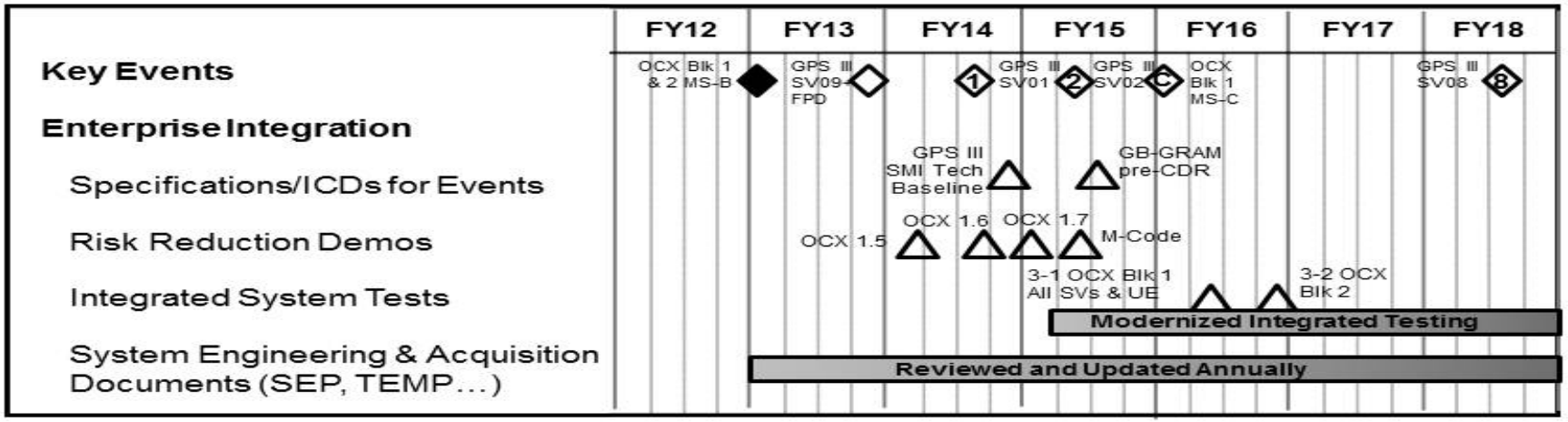
Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
FFRDC (MITRE) (PMA)	C/CPFF	MITRE:Bedford, MA	0.000	0.000		9.141	Mar 2013	9.506	Jan 2014	-		9.506	41.983	60.630	
FFRDC (Aerospace) (PMA)	RO	Aerospace:El Segundo, CA	0.000	0.000		11.257	Apr 2013	11.064	Dec 2013	-		11.064	58.577	80.898	
		Subtotal	0.000	0.000		20.398		20.570		0.000		20.570	100.560	141.528	

	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	0.000		63.810		61.510		0.000		61.510	347.180	472.500	

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2014 Air Force		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 3600: *Research, Development, Test & Evaluation, Air Force* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0603423F: *Global Positioning System III - Operational Control Segment*	PROJECT 67A025: *GPS Enterprise Integrator*



CDR – Critical Design Review
TEMP – Test & Evaluation Master Plan
ISP – Information Support Plan
SMI – Space Modernization Initiative
GB-GRAM – Ground Based GPS Receiver Application Module
ICD – Interface Control Document
SEP – System Engineering Plan
FPD – Follow-on Production Decision
MGUE – Modernized GPS User Equipment
OI – Operating Instructions
SV – Space Vehicles
UE – User Equipment

Exhibit R-4A, RDT&E Schedule Details: PB 2014 Air Force		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 3600: *Research, Development, Test & Evaluation, Air Force* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0603423F: *Global Positioning System III - Operational Control Segment*	PROJECT 67A025: *GPS Enterprise Integrator*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Risk Reduction Demonstration for OCX 1.5 and GPS III functionality	1	2014	1	2014
Specifications and ICDs for GPS III Space Modernization Initiative Technical Baseline	2	2014	2	2014
Risk Reduction Demonstration for OCX 1.6 and GPS III functionality	3	2014	3	2014
Risk Reduction Demonstration for OCX 1.7 and GPS III functionality	1	2015	1	2015
Specifications and ICDs for Ground-Based GPS Receiver Application Module (GB-GRAM) Pre-Critical Design Review (CDR)	3	2015	3	2015