Selected Acquisition Report (SAR)

RCS: DD-A&T(Q&A)823-466

PIM

As of December 31, 2011

Defense Acquisition Management
Information Retrieval
(DAMIR)

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Program Information

Designation And Nomenclature (Popular Name)

Paladin FAASV Integrated Management (PIM)

DoD Component

Army

Responsible Office

Responsible Office

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References

SAR Baseline (Development Estimate)

FY 2013 President's Budget, dated February 13, 2012.

Mission and Description

The M109 Family of Vehicles (FOV) 155mm / 39 caliber Self-Propelled Howitzer (SPH) provides the primary indirect fire support for full spectrum operations. It has the ability to support Heavy Brigade Combat Teams (HBCTs), Infantry Brigade Combat Teams (IBCTs), and Stryker Brigade Combat Teams (SBCTs). The M109 FOV Carrier Ammunition Tracked (CAT) provides armored ammunition supply support to the SPH operating in support of full spectrum operations.

The M109A6 Paladin and the M992A2 Field Artillery Ammunition Support Vehicle (FAASV) are the current fielded versions of the Army's SPH and CAT. The Paladin/FAASV Integrated Management (PIM) SPH and CAT will replace the M109A6 Paladin and M992A2 FAASV.

PIM Objectives:

The PIM program allows growth for improved force protection and technology insertion. PIM buys-back lost performance in the M109 Family of Vehicles by addressing size, weight, and power issues. The program helps to ensure greater vehicle supportability, maintainability, and interoperability by leveraging fleet commonality for key components, replacing aging and obsolete components, and leveraging Bradley and Non-Line-of-Sight Cannon (NLOS-C) technology.

Executive Summary

Paladin/Field Artillery Ammunition Support Vehicle (FAASV) Integrated Management (PIM) is a pre-Milestone C program in the Engineering, Manufacturing, and Development phase (EMD). PIM fielding will support the Army Force Generation (ARFORGEN) model. The Joint Requirements Oversight Council (JROC)-approved Capabilities Production Document (CPD) was signed December 16, 2011. The latest program Acquisition Decision Memorandum (ADM) was signed December 28, 2011 and approved the award of the Comprehensive Contract Modification (CCM). On January 6, 2012, the Product Manager Self-Propelled Howitzer Systems (PM-SPHS) awarded the CCM (Cost Plus Incentive Fee). The CCM added scope necessary for the Original Equipment Manufacturer (OEM) to accomplish all tasks and planning required to provide a system design ready for production. A portion of work remains on the Base EMD Contract (Cost Plus Fixed Fee) but is expected to be complete by the end of fiscal year 2012.

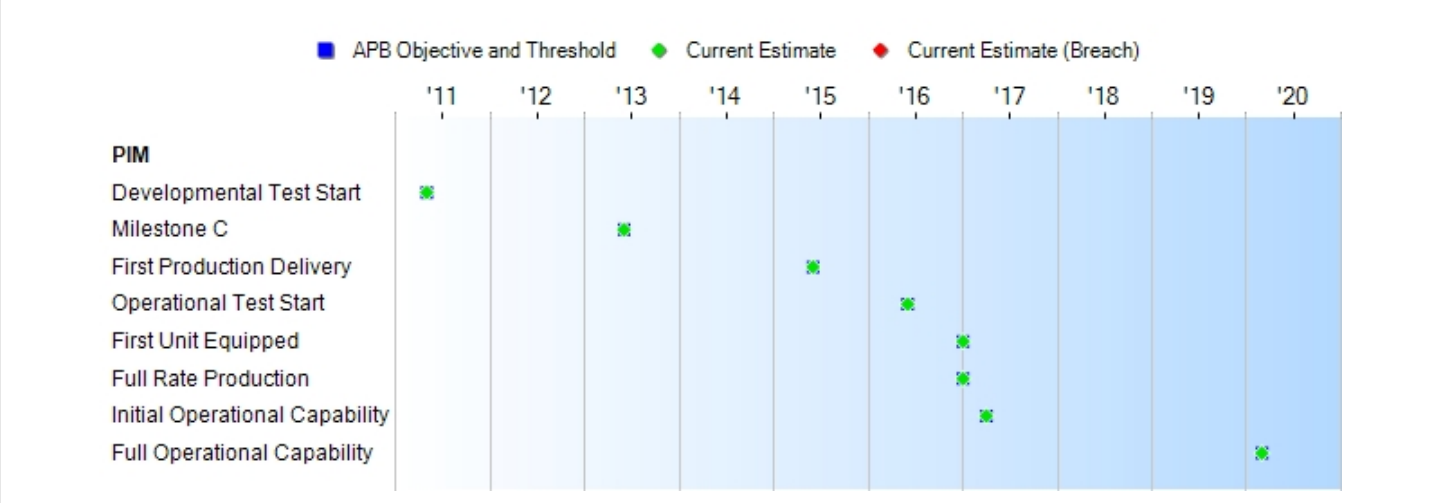
There are no significant software-related issues with this program at this time.

Threshold Breaches

APB Breaches		
Schedule		☐
Performance		☐
Cost	RDT&E	☐
	Procurement	☐
	MILCON	☐
	Acq O&M	☐
Unit Cost	PAUC	☐
	APUC	☐

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

Schedule



Milestones	SAR Baseline Dev Est	Current APB Objective/Threshold		Current Estimate
Developmental Test Start	MAY 2011	N/A	N/A	MAY 2011
Milestone C	JUN 2013	N/A	N/A	JUN 2013
First Production Delivery	JUN 2015	N/A	N/A	JUN 2015
Operational Test Start	JUN 2016	N/A	N/A	JUN 2016
First Unit Equipped	JAN 2017	N/A	N/A	JAN 2017
Full Rate Production	JAN 2017	N/A	N/A	JAN 2017
Initial Operational Capability	APR 2017	N/A	N/A	APR 2017
Full Operational Capability	MAR 2020	N/A	N/A	MAR 2020

Change Explanations

None

Performance

Characteristics	SAR Baseline Dev Est	Current APB Objective/Threshold		Demonstrated Performance	Current Estimate
KPP 1: Net-Ready	The capability, system, and/or service must fully support execution of joint critical operational activities and information exchanges identified in the DOD Enterprise Architecture and solution architectures based on integrated DODAF content, and must satisfy the technical requirements for transition to Net-Centric military operations to include: 1) Solution architecture products compliant with DOD Enterprise Architecture based on integrated DODAF content, including specified operationally effective information	N/A	N/A	TBD	The capability, system, and/or service must fully support execution of joint critical operational activities and information exchanges identified in the DOD Enterprise Architecture and solution architectures based on integrated DODAF content, and must satisfy the technical requirements for transition to Net-Centric military operations to include: 1) Solution architecture products compliant with DOD Enterprise Architecture based on integrated DODAF content, including specified operationally effective information

	exchanges 2) Compliant with Net-Centric Data Strategy and Net-Centric Services Strategy, and the principles and rules identified in the DOD Information Enterprise Architecture (DOD IEA), excepting tactical and non-IP communications. 3) Compliant with GIG Technical Guidance to include IT Standards identified in the TV-I and implementation guidance of GESPs, necessary to meet all operational requirements specified in the DOD Enterprise Architecture and solution architecture views 4) Information assurance requirements including availability, integrity, authentication, confidentiality, and non-				exchanges 2) Compliant with Net-Centric Data Strategy and Net-Centric Services Strategy, and the principles and rules identified in the DOD Information Enterprise Architecture (DOD IEA), excepting tactical and non-IP communications. 3) Compliant with GIG Technical Guidance to include IT Standards identified in the TV-I and implementation guidance of GESPs, necessary to meet all operational requirements specified in the DOD Enterprise Architecture and solution architecture views 4) Information assurance requirements including availability, integrity, authentication, confidentiality, and non-

	repudiation, and issuance of an ATO by the DAA, and 5) Supportability requirements to include SAASM, Spectrum and JTRS requirements.				repudiation, and issuance of an ATO by the DAA, and 5) Supportability requirements to include SAASM, Spectrum and JTRS requirements.
KPP 2: Force Protection	The crew, when wearing personal body armor and helmets, will be protected when the platform is engaged by XXXX bullets at a distance of XXX meters, blast fragments from XXXX artillery projectiles at a distance of XXX meters, blast fragments from XXX IEDs at a distance of XXX meters, and underbelly blast effects containing and XX lbs of TNT at a depth of YYY mm	N/A	N/A	TBD	The crew, when wearing personal body armor and helmets, will be protected when the platform is engaged by XXXX bullets at a distance of XXX meters, blast fragments from XXXX artillery projectiles at a distance of XXX meters, blast fragments from XXX IEDs at a distance of XXX meters, and underbelly blast effects containing and XX lbs of TNT at a depth of YYY mm
KPP 3: Survivability	The Howitzer and CAT will retain the	N/A	N/A	TBD	The Howitzer and CAT will retain the

	capability to perform its primary mission in either a fully operational or degraded mode. The primary mission of the howitzer is the ability to conduct fire missions and have the ability to communicate with the Platoon/Battery Fire Direction Center or other elements of the Platoon/Battery. In degraded mode, the howitzer still accomplishes its primary mission of firing and maintaining communications with FDC but may have limitations to firing, movement, and communications. These conditions are to be met when the platform is engaged by XXXX bullets at a distance of XXX meters,				capability to perform its primary mission in either a fully operational or degraded mode. The primary mission of the howitzer is the ability to conduct fire missions and have the ability to communicate with the Platoon/Battery Fire Direction Center or other elements of the Platoon/Battery. In degraded mode, the howitzer still accomplishes its primary mission of firing and maintaining communications with FDC but may have limitations to firing, movement, and communications. These conditions are to be met when the platform is engaged by XXXX bullets at a distance of XXX meters,

	blast fragments from XXXX artillery projectiles at a distance of XXX meters, blast fragments from XXXX IEDs at a distance of XXX meters, and underbelly blast effects containing XX lbs of TNT at a depth of YYY mm.				blast fragments from XXXX artillery projectiles at a distance of XXX meters, blast fragments from XXXX IEDs at a distance of XXX meters, and underbelly blast effects containing XX lbs of TNT at a depth of YYY mm.
KPP 4: Digital Fire Control System (DFCS)	Receive, process, and transmit technical fire control data from/to AFATDS to independentl y compute and execute precision fire missions. Must be able to host current and future software upgrades.	N/A	N/A	TBD	Receive, process, and transmit technical fire control data from/to AFATDS to independentl y compute and execute precision fire missions. Must be able to host current and future software upgrades.
KPP 5: Rate of Fire	For un-guided projectiles, max rate of fire 6 rpm for 3 minutes with a sustained rate of fire of 1 rpm until limited by tube temperature sensor. For guided	N/A	N/A	TBD	For un-guided projectiles, max rate of fire 6 rpm for 3 minutes with a sustained rate of fire of 1 rpm until limited by tube temperature sensor. For guided

	munitions, fire 3 rpm.				munitions, fire 3 rpm.
KPP 6: Range	Minimum indirect fire range using the M107 projectile and MACS propellant shall be no more than 4 km. Maximum range when firing the M795 projectile and MACS propellant shall be no less than 22 km. Maximum range when firing assisted (i.e. rocket assisted) projectile M549A1 shall be no less than 40 km, IAW ICAO standard conditions.	N/A	N/A	TBD	Minimum indirect fire range using the M107 projectile and MACS propellant shall be no more than 4 km. Maximum range when firing the M795 projectile and MACS propellant shall be no less than 22 km. Maximum range when firing assisted (i.e. rocket assisted) projectile M549A1 shall be no less than 40 km, IAW ICAO standard conditions.
KPP 7: Self-Propelled Howitzer Reliability	Will have a reliability of 84% probability of completing an 18-hour combat mission.	N/A	N/A	TBD	Will have a reliability of 84% probability of completing an 18-hour combat mission.
KPP 8: Self-Propelled Howitzer Availability (Materiel Availability/Operational Availability)	The Howitzer shall demonstrate a Am of 83% and an Ao measured at the Fires Battalion level of 95%	N/A	N/A	TBD	The Howitzer shall demonstrate a Am of 83% and an Ao measured at the Fires Battalion level of 95%

KPP 9: Carrier Ammunition Tracked Reliability	Will have a reliability of 90% probability of completing an 18-hour combat mission.	N/A	N/A	TBD	Will have a reliability of 90% probability of completing an 18-hour combat mission.
KPP 10: Carrier Ammunition Tracked Availability (Materiel Availability / Operational Availability)	The CAT shall demonstrate a Am of 72% and an Ao measured at the Fires Battalion level of 95%	N/A	N/A	TBD	The CAT shall demonstrate a Am of 72% and an Ao measured at the Fires Battalion level of 95%

Acronyms And Abbreviations

AFATDS - Advanced Field Artillery Tactical Data System
Am - Materiel Availability
Ao - Operational Availability
ATO - Approval to Operate
CAT - Carrier Ammunition Tracked
DAA - Designated Accrediting Authority
DOD - Department of Defense
DOD IEA - Department of Defense Information Enterprise Architecture
DODAF - Department of Defense Architecture Framework
FDC - Fire Direction Center
GESP - GIG Enterprise Service Profile
GIG - Global Information Grid
IATO - Interim Approval to Operate
IAW - In Accordance With
ICAO - International Civil Aviation Organization
IED - Improvised Explosive Device
IP - Information Processing
IT - Information Technology
JTRS - Joint Tactical Radio System
KPP - Key Performance Parameter
lbs - Pounds
MACS - Modular Artillery Charge System
mm - Millimeters
rpm - Rounds per Minute
SAASM - Selective Availability Anti-Spoofing Module
TV - Technical View

Change Explanations

None

Memo

Capabilities Production Document (CPD) approved by the Joint Requirements Oversight Council (JROC) December 19, 2011.

Track To Budget

RDT&E			
APPN 2040	BA 05	PE 0604854A	(Army)
	Project 516	Artillery Systems - Engineering Manufacturing and Development	

Procurement			
APPN 2033	BA 01	PE 0210600A	(Army)
	ICN 2073GZ0410	Paladin PIM Mod In Service	
	Standard Study Number GZ0410		

Cost and Funding

Cost Summary

Total Acquisition Cost and Quantity

	BY $M			BY2011 $M	TY $M		
Appropriation	SAR Baseline Dev Est	Current APB Objective/Threshold		Current Estimate	SAR Baseline Dev Est	Current APB Objective	Current Estimate
RDT&E	1000.9	--	--	1000.5	1041.7	--	1043.7
Procurement	5640.1	--	--	5629.7	6785.4	--	6855.6
Flyaway	5259.9	--	--	5250.2	6320.1	--	6384.6
Recurring	5157.1	--	--	5148.1	6206.3	--	6270.8
Non Recurring	102.8	--	--	102.1	113.8	--	113.8
Support	380.2	--	--	379.5	465.3	--	471.0
Other Support	301.2	--	--	300.9	370.6	--	375.4
Initial Spares	79.0	--	--	78.6	94.7	--	95.6
MILCON	0.0	--	--	0.0	0.0	--	0.0
Acq O&M	0.0	--	--	0.0	0.0	--	0.0
Total	6641.0	--	--	6630.2	7827.1	--	7899.3

The Confidence level is 50% - The PIM Army Cost Position (ACP), approved December 2, 2011 by Assistant Secretary of the Army (Financial Management and Comptroller), was used to establish Acquisition Program Baseline. The PIM ACP was developed at the 50% Confidence Level in accordance with Army Cost guidance, AR 11-18.

It is difficult to calculate mathematically the precise confidence levels associated with life cycle cost estimates prepared for Major Defense Acquisition Programs (MDAPs). Based on the rigor in methods used in building estimates, the strong adherence to the collection and use of historical cost information, and the review of applied assumptions, we project that it is about equally likely that the estimate will prove too low or too high for execution of the program described.

Quantity	SAR Baseline Dev Est	Current APB	Current Estimate
RDT&E	2	0	2
Procurement	580	0	580
Total	582	0	582

A quantity of 2 Paladin/Field Artillery Ammunition Supply Vehicle (FAASV) Integrated Management (PIM) sets is input for the Research Development Test & Evaluation (RDT&E) phase quantity. One and a half (1.5) PIM sets are RDT&E-funded Low Rate Initial Production (LRIP) assets to be procured in FY2013 for Full Up System Live Fire testing. The remaining half set (0.5) represents a prototype Self-Propelled Howitzer (SPH) 5A considered to be production-representative for Program Acquisition Unit Cost (PAUC) calculation purposes.

The procurement quantity represents 580 PIM Sets (1 SPH and 1 Carrier Ammunition Tracked (CAT)).

Cost and Funding

Funding Summary

Appropriation and Quantity Summary
FY2013 President's Budget / December 2011 SAR (TY$ M)

Appropriation	Prior	FY2012	FY2013	FY2014	FY2015	FY2016	FY2017	To Complete	Total
RDT&E	421.1	120.0	167.8	121.3	68.4	114.5	28.6	2.0	1043.7
Procurement	0.0	0.0	206.1	260.2	302.3	297.6	471.7	5317.7	6855.6
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 2013 Total	421.1	120.0	373.9	381.5	370.7	412.1	500.3	5319.7	7899.3
	--	--	--	--	--	--	--	--	--

Quantity	Undistributed	Prior	FY2012	FY2013	FY2014	FY2015	FY2016	FY2017	To Complete	Total
Development	2	0	0	0	0	0	0	0	0	2
Production	0	0	0	17	18	18	18	36	473	580
PB 2013 Total	2	0	0	17	18	18	18	36	473	582
	--	--	--	--	--	--	--	--	--	--

Cost and Funding

Annual Funding By Appropriation

Annual Funding TY$
2040 | RDT&E | Research, Development, Test, and Evaluation, Army

Fiscal Year	Quantity	End Item Recurring Flyaway TY $M	Non End Item Recurring Flyaway TY $M	Non Recurring Flyaway TY $M	Total Flyaway TY $M	Total Support TY $M	Total Program TY $M
2007	--	--	--	--	--	--	1.6
2008	--	--	--	--	--	--	34.8
2009	--	--	--	--	--	--	61.0
2010	--	--	--	--	--	--	223.8
2011	--	--	--	--	--	--	99.9
2012	--	--	--	--	--	--	120.0
2013	--	--	--	--	--	--	167.8
2014	--	--	--	--	--	--	121.3
2015	--	--	--	--	--	--	68.4
2016	--	--	--	--	--	--	114.5
2017	--	--	--	--	--	--	28.6
2018	--	--	--	--	--	--	2.0
Subtotal	**2**	**--**	**--**	**--**	**--**	**--**	**1043.7**

Annual Funding BY$
2040 | RDT&E | Research, Development, Test, and Evaluation, Army

Fiscal Year	Quantity	End Item Recurring Flyaway BY 2011 $M	Non End Item Recurring Flyaway BY 2011 $M	Non Recurring Flyaway BY 2011 $M	Total Flyaway BY 2011 $M	Total Support BY 2011 $M	Total Program BY 2011 $M
2007	--	--	--	--	--	--	1.7
2008	--	--	--	--	--	--	35.8
2009	--	--	--	--	--	--	62.0
2010	--	--	--	--	--	--	224.1
2011	--	--	--	--	--	--	98.0
2012	--	--	--	--	--	--	115.7
2013	--	--	--	--	--	--	158.6
2014	--	--	--	--	--	--	112.7
2015	--	--	--	--	--	--	62.4
2016	--	--	--	--	--	--	102.6
2017	--	--	--	--	--	--	25.2
2018	--	--	--	--	--	--	1.7
Subtotal	**2**	**--**	**--**	**--**	**--**	**--**	**1000.5**

FY2010 includes $76.3M Above Threshold Reprogramming received in March 2011.

Annual Funding TY$

2033 | Procurement | Procurement of Weapons and Tracked Combat Vehicles, Army

Fiscal Year	Quantity	End Item Recurring Flyaway TY $M	Non End Item Recurring Flyaway TY $M	Non Recurring Flyaway TY $M	Total Flyaway TY $M	Total Support TY $M	Total Program TY $M
2013	17	161.1	12.9	23.7	197.7	8.4	206.1
2014	18	162.5	59.3	23.9	245.7	14.5	260.2
2015	18	161.5	98.3	23.7	283.5	18.8	302.3
2016	18	163.7	93.4	20.0	277.1	20.5	297.6
2017	36	342.5	97.2	11.1	450.8	20.9	471.7
2018	60	477.9	111.4	1.5	590.8	27.6	618.4
2019	60	469.6	107.7	1.5	578.8	33.1	611.9
2020	60	456.5	122.3	1.4	580.2	32.8	613.0
2021	60	457.1	123.9	1.4	582.4	45.1	627.5
2022	60	461.9	136.3	1.4	599.6	44.1	643.7
2023	60	467.2	136.5	1.4	605.1	46.8	651.9
2024	58	457.7	140.7	1.4	599.8	41.5	641.3
2025	55	440.3	121.2	1.4	562.9	43.9	606.8
2026	--	0.9	115.0	--	115.9	34.5	150.4
2027	--	0.8	95.2	--	96.0	27.9	123.9
2028	--	0.8	17.5	--	18.3	10.6	28.9
Subtotal	**580**	**4682.0**	**1588.8**	**113.8**	**6384.6**	**471.0**	**6855.6**

Annual Funding BY$

2033 | Procurement | Procurement of Weapons and Tracked Combat Vehicles, Army

Fiscal Year	Quantity	End Item Recurring Flyaway BY 2011 $M	Non End Item Recurring Flyaway BY 2011 $M	Non Recurring Flyaway BY 2011 $M	Total Flyaway BY 2011 $M	Total Support BY 2011 $M	Total Program BY 2011 $M
2013	17	150.5	12.1	22.1	184.7	7.9	192.6
2014	18	149.2	54.5	21.9	225.6	13.3	238.9
2015	18	145.6	88.6	21.4	255.6	17.0	272.6
2016	18	145.0	82.8	17.7	245.5	18.1	263.6
2017	36	298.1	84.5	9.7	392.3	18.2	410.5
2018	60	408.5	95.2	1.3	505.0	23.6	528.6
2019	60	394.3	90.5	1.3	486.1	27.7	513.8
2020	60	376.6	100.9	1.2	478.7	27.0	505.7
2021	60	370.4	100.5	1.1	472.0	36.5	508.5
2022	60	367.7	108.5	1.1	477.3	35.1	512.4
2023	60	365.3	106.7	1.1	473.1	36.6	509.7
2024	58	351.5	108.1	1.1	460.7	31.9	492.6
2025	55	332.2	91.4	1.1	424.7	33.1	457.8
2026	--	0.7	85.2	--	85.9	25.6	111.5
2027	--	0.6	69.3	--	69.9	20.3	90.2
2028	--	0.6	12.5	--	13.1	7.6	20.7
Subtotal	**580**	**3856.8**	**1291.3**	**102.1**	**5250.2**	**379.5**	**5629.7**

Cost Quantity Information
2033 | Procurement | Procurement of Weapons and Tracked Combat Vehicles, Army

Fiscal Year	Quantity	End Item Recurring Flyaway (Aligned with Quantity) BY 2011 $M
2013	17	150.7
2014	18	149.3
2015	18	145.8
2016	18	145.2
2017	36	298.3
2018	60	408.9
2019	60	394.6
2020	60	376.8
2021	60	370.4
2022	60	367.7
2023	60	365.4
2024	58	351.5
2025	55	332.2
2026	--	--
2027	--	--
2028	--	--
Subtotal	**580**	**3856.8**

Low Rate Initial Production

The PIM program is pre-Milestone C and does not have an LRIP decision or an approved LRIP quanitity.

Foreign Military Sales

None

Nuclear Cost

None

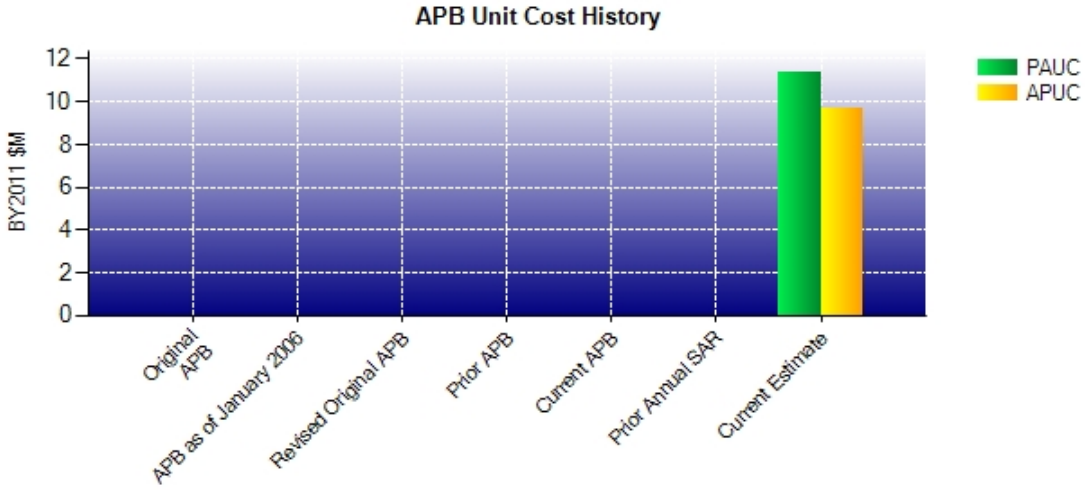
Unit Cost

Unit Cost Report

Unit Cost	BY2011 $M Current UCR Baseline	BY2011 $M Current Estimate (DEC 2011 SAR)	BY % Change
Program Acquisition Unit Cost (PAUC)			
Cost	--	6630.2	
Quantity	--	582	
Unit Cost	--	11.392	--
Average Procurement Unit Cost (APUC)			
Cost	--	5629.7	
Quantity	--	580	
Unit Cost	--	9.706	--

Unit Cost	BY2011 $M Original UCR Baseline	BY2011 $M Current Estimate (DEC 2011 SAR)	BY % Change
Program Acquisition Unit Cost (PAUC)			
Cost	--	6630.2	
Quantity	--	582	
Unit Cost	--	11.392	--
Average Procurement Unit Cost (APUC)			
Cost	--	5629.7	
Quantity	--	580	
Unit Cost	--	9.706	--

Unit Cost History



		BY2011 $M		TY $M	
	Date	PAUC	APUC	PAUC	APUC
Original APB	N/A	N/A	N/A	N/A	N/A
APB as of January 2006	N/A	N/A	N/A	N/A	N/A
Revised Original APB	N/A	N/A	N/A	N/A	N/A
Prior APB	N/A	N/A	N/A	N/A	N/A
Current APB	N/A	N/A	N/A	N/A	N/A
Prior Annual SAR	N/A	N/A	N/A	N/A	N/A
Current Estimate	DEC 2011	11.392	9.706	13.573	11.820

SAR Unit Cost History

Current SAR Baseline to Current Estimate (TY $M)

Initial PAUC Dev Est	Changes								PAUC Current Est
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
13.449	0.154	0.000	0.000	0.000	-0.029	0.000	-0.001	0.124	13.573

Current SAR Baseline to Current Estimate (TY $M)

Initial APUC Dev Est	Changes								APUC Current Est
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
11.699	0.145	0.000	0.000	0.000	-0.023	0.000	-0.001	0.121	11.820

SAR Baseline History

Item/Event	SAR Planning Estimate (PE)	SAR Development Estimate (DE)	SAR Production Estimate (PdE)	Current Estimate
Milestone A	N/A	N/A	N/A	N/A
Milestone B	N/A	N/A	N/A	N/A
Milestone C	N/A	JUN 2013	N/A	JUN 2013
IOC	N/A	APR 2017	N/A	APR 2017
Total Cost (TY $M)	N/A	7827.1	N/A	7899.3
Total Quantity	N/A	582	N/A	582
Prog. Acq. Unit Cost (PAUC)	N/A	13.449	N/A	13.573

Cost Variance

Cost Variance Summary

Summary Then Year $M				
	RDT&E	Proc	MILCON	Total
SAR Baseline (Dev Est)	1041.7	6785.4	--	7827.1
Previous Changes				
Economic	--	--	--	--
Quantity	--	--	--	--
Schedule	--	--	--	--
Engineering	--	--	--	--
Estimating	--	--	--	--
Other	--	--	--	--
Support	--	--	--	--
Subtotal	--	--	--	--
Current Changes				
Economic	+5.8	+84.0	--	+89.8
Quantity	--	--	--	--
Schedule	--	--	--	--
Engineering	--	--	--	--
Estimating	-3.8	-13.3	--	-17.1
Other	--	--	--	--
Support	--	-0.5	--	-0.5
Subtotal	+2.0	+70.2	--	+72.2
Total Changes	+2.0	+70.2	--	+72.2
CE - Cost Variance	1043.7	6855.6	--	7899.3
CE - Cost & Funding	1043.7	6855.6	--	7899.3

Summary Base Year 2011 $M				
	RDT&E	Proc	MILCON	Total
SAR Baseline (Dev Est)	1000.9	5640.1	--	6641.0
Previous Changes				
Economic	--	--	--	--
Quantity	--	--	--	--
Schedule	--	--	--	--
Engineering	--	--	--	--
Estimating	--	--	--	--
Other	--	--	--	--
Support	--	--	--	--
Subtotal	--	--	--	--
Current Changes				
Economic	--	--	--	--
Quantity	--	--	--	--
Schedule	--	--	--	--
Engineering	--	--	--	--
Estimating	-0.4	-9.7	--	-10.1
Other	--	--	--	--
Support	--	-0.7	--	-0.7
Subtotal	-0.4	-10.4	--	-10.8
Total Changes	-0.4	-10.4	--	-10.8
CE - Cost Variance	1000.5	5629.7	--	6630.2
CE - Cost & Funding	1000.5	5629.7	--	6630.2

Previous Estimate:

RDT&E	$M	
Current Change Explanations	Base Year	Then Year
Revised escalation indices. (Economic)	N/A	+5.8
Adjustment for current and prior escalation. (Estimating)	-0.8	-0.8
FY 2013 President's Budget (PB) vs Acquisition Program Baseline (APB) delta. (Estimating)	+0.2	+0.3
Timing of actual spend vs. cost estimate; including reprogramming of funds. (Estimating)	+4.6	+1.6
Adjustment to reflect the application of new outyear escalation indices. (Estimating)	-4.4	-4.9
RDT&E Subtotal	-0.4	+2.0

Procurement	$M	
Current Change Explanations	Base Year	Then Year
Revised escalation indices. (Economic)	N/A	+84.0
Reverse PB 2013 inflation economic variance to tie to budget. (Estimating)	-10.2	-11.4
PB 2013 budget vs APB delta; FY 2013 - 2017 increase offset in FY 2018 - 2025. (Estimating)	+0.5	-1.9
Decrease in Other Support. (Support)	-0.3	-0.4
Decrease in Initial Spares. (Support)	-0.4	-0.1
Procurement Subtotal	-10.4	+70.2

Contracts

Appropriation: RDT&E	
Contract Name	**Base EMD Contract**
Contractor	BAE Systems Land & Armament L.P.
Contractor Location	1100 Bairs Road York, PA 17409
Contract Number, Type	W56HZV-09-C-0550, CPFF
Award Date	September 14, 2009
Definitization Date	September 14, 2009

Initial Contract Price ($M)			Current Contract Price ($M)			Estimated Price At Completion ($M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
63.9	N/A	N/A	206.0	N/A	N/A	206.0	206.0

Variance	Cost Variance	Schedule Variance
Cumulative Variances To Date (1/17/2012)	-33.4	-9.1
Previous Cumulative Variances	--	--
Net Change	-33.4	-9.1

Cost And Schedule Variance Explanations

The unfavorable cumulative cost variance is due to greater than planned effort to achieve prototype design. Complexities in Engineering, Program Management, and Powertrain efforts resulted in a significant portion of the cumulative cost variance. Additionally, a change to force protection and survivability requirements also contributed.

The unfavorable cumulative schedule variance is due to delays in test start and subsequent vehicle refurbishment and changes to force protection and survivability requirements that drove the addition of Threshold 2 (T2) Armor Kits and new Ballistic Hull and Turrets (BH&Ts). In addition, flooding from Tropical Storm Irene in 2011 destroyed the Paladin Integrated Management (PIM) Software and 600 volt development facility resulting in schedule delays.

The Government and the contractor are implementing a new Earned Value (EV) baseline under the Comprehensive Contract Modification (CCM), which was awarded on January 6, 2012. The period of performance began on February 1, 2012 for the CCM phase of work. The contractor will replan remaining work on the Cost Plus Fixed Fee (CPFF) contract under the original baseline. The CCM scope of work will be developed into a new baseline that will be created using a resource-loaded schedule that is electronically integrated with the contractor's EV baseline. Resource-loading will provide an accurate picture of cost and schedule variance information and will provide a direct correlation, and traceability, between the monthly Contract Performance Report (CPR) schedule variances and the detailed activities in the schedule. Proper resource loading and electronic integration of the schedule and EV baseline will result in reduced work and improved information flow and traceability. Rigid change control to identify the original scope from new scope, and scope growth will provide a reliable and trusted baseline that can be used in the management and reporting of the contract.

Contract Comments

The difference between the initial contract price target and the current contract price target is due to the following reasons. The PIM program was initially a follower of Non-Line-of-Sight Cannon (NLOS-C) regarding technological improvements. Once NLOS-C was canceled, PIM became an Army priority program and took the lead role for certain technological advancements. Additionally, changes in Force Protection / Survivability requirements resulted in a revised Capabilities Production Document and drove additional contract requirements. Finally, PIM transitioned from an Acquisition Category (ACAT) II to an ACAT ID program resulting in additonal documentation and administration costs.

5 Self-Propelled Howitzers (SPH) and 2 Carrier Ammunition Tracked (CAT) prototypes were acquired under the Base Engineering and Manufacturing Development Contract.

This is the first time this contract is being reported.

Appropriation: RDT&E

Contract Name	**Comprehensive Contract Modification (CCM)**
Contractor	BAE Systems Land & Armaments L.P.
Contractor Location	1100 Bairs Road York, PA 17408
Contract Number, Type	W56HZV-09-C-0550/38, CPIF
Award Date	January 06, 2012
Definitization Date	January 06, 2012

Initial Contract Price ($M)			Current Contract Price ($M)			Estimated Price At Completion ($M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
311.6	N/A	N/A	311.6	N/A	N/A	311.6	311.6

Variance	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

None

Contract Comments

The CCM was recently awarded and has not yet been baselined. No Contract Performance Reports (CPRs) have been submitted, so there is not a report date to enter. Receipt of the first CPR is expected in April 2012.

This is the first time this contract is being reported.

Deliveries and Expenditures

Deliveries To Date	Plan To Date	Actual To Date	Total Quantity	Percent Delivered
Development	0	0	2	0.00%
Production	0	0	580	0.00%
Total Program Quantities Delivered	0	0	582	0.00%

Expenditures and Appropriations (TY $M)			
Total Acquisition Cost	7899.3	Years Appropriated	6
Expenditures To Date	344.4	Percent Years Appropriated	27.27%
Percent Expended	4.36%	Appropriated to Date	541.1
Total Funding Years	22	Percent Appropriated	6.85%

Delivery and Expenditure data is as of December 31, 2011.

Operating and Support Cost

Assumptions And Ground Rules

Operating and Support (O&S) Costs are presented as the Average Annual Cost Per Set. A set is comprised of one self-propelled howitzer and one ammunition carrier. The source of the PIM O&S information is the December 2, 2011 approved PIM Army Cost Position (ACP). O&S costs for the M109A6 Paladin / M992A2 Field Artillery Ammunition Support Vehicle (FAASV) (antecedent system) are based on various sources including the Operating and Support Management Information System (OSMIS), the Army Manpower Allocation Requirements Criteria (MARC) Database, and historical actuals from the program office. Please note that complete cost data for the antecedent system may not be fully captured as the program office does not have visibility into all areas of historical costs. The M109A6 Paladin / M992A2 FAASV Average Annual Cost Per Set is an approximation.

PIM O&S costs are based on the Army Acquisition Objective (AAO) of 580 fielded PIM sets and an operating life of 20 years with a year break in service for overhaul assumed at mid-life. For the purpose of calculating the PIM O&S Average Annual Cost Per Set, some cost elements (e.g. Crew, Maintenance) were divided by a denominator greater than 580 to reflect the Army's current Force Structure plans given the current AAO assumption. The AAO of 580 PIM Sets does not fully fill each Heavy Brigade Combat Team (HBCT) and Enhanced Artillery Brigade (EAB) per the M109 Family of Vehicles Army Acquisition Objective (AAO) memo issued by the G-3/5/7 Deputy Chief of Staff on May 24, 2011. For relevant cost elements, costs were calculated assuming the Force Structure full operational requirements of PIM sets per HBCT or EAB. This explains why the PIM Average Annual Cost Per set cannot be simply multiplied by a service life of 20 years and 580 vehicle sets to calculate the total.

For the M109A6 Paladin and M99A2 FAASV the modular end state is currently 702 and 636 vehicles, respectively. For simplicity of analysis, 700 sets and an operating life of 20 years was used to estimate a rough order of magnitude antecedent system BY11$ total. As the BY dollars values are not time-phased, a TY value cannot be calculated.

Also note that operational tempos (OPTEMPOs) for PIM are based on the G-3/5/7 Forces Command (FORSCOM) model. The OPTEMPOs for Paladin M109A6 and M99A2 FAASV are based on historical actuals pulled from OSMIS.

O&S costs reported are per the December 2, 2011 PIM ACP. TY dollars are adjusted per PB13 indices. The O&S costs reported include 4.0 Military Personnel and 5.0 Operations and Maintenance Army (OMA). O&S cost reported exclude 2.11 Training Ammunition and 2.13 Modifications. 2.11 Training Ammo and 2.13 Modifications were excluded so that the methodology used for PIM and the antecedent system was comparable.

Costs BY2011 $M		
Cost Element	**PIM Average Annual Cost Per Set**	**M109A6 Paladin / M992A2 FAASV Average Annual Cost Per Set**
Unit-Level Manpower	0.336	0.342
Unit Operations	0.002	0.001
Maintenance	0.149	0.129
Sustaining Support	0.093	0.101
Continuing System Improvements	0.044	0.020
Indirect Support	0.011	0.011
Other	--	--
Total Unitized Cost (Base Year 2011 $)	0.635	0.604

Total O&S Costs $M	PIM	M109A6 Paladin / M992A2 FAASV
Base Year	7989.5	8456.0
Then Year	11518.7	0.0

PIM O&S cost reported in the tables exclude 2.11 Training Ammunition of 1,844.1 BY11$M (2,853.1 TY$M) and 2.13 Modifications of 388.4 BY11$M (602.8 TY$M).

PIM total O&S Costs inclusive of Training Ammunition and Modifications in BY11$M and TY$M are 10,222.1 and 14,974.7, respectively. PIM Training Ammunition and Modifications Average Annual Cost Per Set in BY11$M are 0.173 (0.140 Training Ammunition and 0.033 Modifications).

PIM Lifecycle Demilitarization / Disposal costs of $61.5M (BY 2011) are included in the O&S estimate.