Selected Acquisition Report (SAR)

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

Paladin Integrated Management (PIM)

As of FY 2015 President's Budget

Defense Acquisition Management
Information Retrieval
(DAMIR)

Table of Contents

Common Acronyms and Abbreviations

Acq O&M - Acquisition-Related Operations and Maintenance
APB - Acquisition Program Baseline
APPN - Appropriation
APUC - Average Procurement Unit Cost
BA - Budget Authority/Budget Activity
BY - Base Year
DAMIR - Defense Acquisition Management Information Retrieval
Dev Est - Development Estimate
DoD - Department of Defense
DSN - Defense Switched Network
Econ - Economic
Eng - Engineering
Est - Estimating
FMS - Foreign Military Sales
FY - Fiscal Year
IOC - Initial Operational Capability
$K - Thousands of Dollars
LRIP - Low Rate Initial Production
$M - Millions of Dollars
MILCON - Military Construction
N/A - Not Applicable
O&S - Operating and Support
Oth - Other
PAUC - Program Acquisition Unit Cost
PB - President's Budget
PE - Program Element
Proc - Procurement
Prod Est - Production Estimate
QR - Quantity Related
Qty - Quantity
RDT&E - Research, Development, Test, and Evaluation
SAR - Selected Acquisition Report
Sch - Schedule
Spt - Support
TBD - To Be Determined
TY - Then Year
UCR - Unit Cost Reporting

Program Information

Program Name

Paladin 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

Approved APB

Defense Acquisition Executive (DAE) Approved Acquisition Program Baseline (APB) dated March 9, 2014

Mission and Description

The M109 Family of Vehicles (FOV) 155-millimeter / 39-caliber Self-Propelled Howitzer (SPH) provides the primary indirect fire support for full spectrum operations. It has the ability to support Armored Brigade Combat Teams, Infantry Brigade Combat Teams, and Stryker Brigade Combat Teams. 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 currently fielded versions of the Army’s SPH and CAT. The Paladin Integrated Management (PIM) SPH and CAT will replace the M109A6 Paladin and M992A2 FAASV.

The PIM program allows growth for improved force protection and technology insertion. PIM buys-back lost performance in the M109 FOV 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 technology.

Executive Summary

PIM is a post-Milestone (MS) C program in the Production and Deployment phase. The PIM program had a successful MS C Defense Acquisition Board on October 18, 2013. The Defense Acquisition Executive signed the MS C Acquisition Decision Memorandum permitting the program to begin LRIP on October 21, 2013. An LRIP contract (Fixed Price Incentive Firm) was awarded to BAE Systems on October 30, 2013. RDT&E-funded work supporting LRIP continues under the Engineering, Manufacturing, and Development (EMD) contract. An additional modification to the EMD contract will be awarded in FY 2014 to extend the EMD contract period of performance and add scope for contractor support to Production Qualification Testing, Initial Operational Test and Evaluation (IOT&E) and the Logistics Demonstration.

In the FY 2015 PB (covering FY 2015 - FY 2019), the PIM program was decremented $17.4 million in FY 2015. The decrement was reprogrammed to FY 2016 and FY 2017 in a 60/40 split. A proposal for the EMD contract extension was recently submitted that exceeds the amounts allocated in Government estimates (including FY 2015). Although reductions through negotiations are anticipated, a program unfunded requirement is expected to persist in FY 2015 given the decrement. If sufficient FY 2015 funding is not restored to support the EMD contract extension, it will result in reduced levels of contractor support for PIM LRIP testing and the planned Logistics Demonstration. This reduced contractor support increases schedule risk for IOT&E and First Unit Equipped.

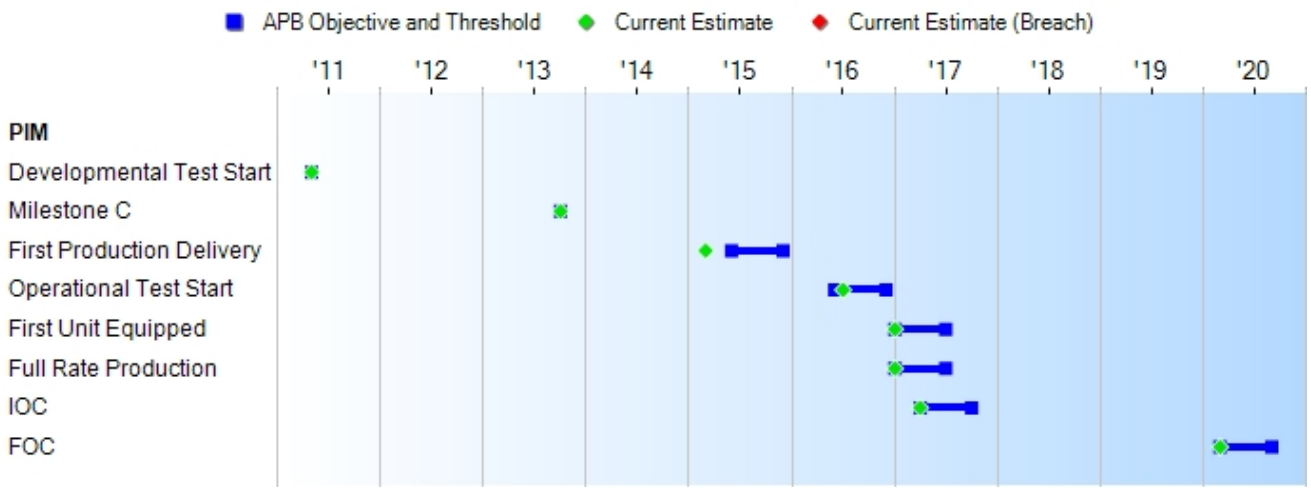
There are no significant software-related issues with this program at this time.

Threshold Breaches

APB Breaches		
Schedule		☐
Performance		☐
Cost	RDT&E	☐
	Procurement	☐
	MILCON	☐
	Acq O&M	☐
O&S Cost		☐
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 Production Objective/Threshold		Current Estimate	
Developmental Test Start	MAY 2011	MAY 2011	MAY 2011	MAY 2011	
Milestone C	JUN 2013	OCT 2013	OCT 2013	OCT 2013	(Ch-1)
First Production Delivery	JUN 2015	JUN 2015	DEC 2015	MAR 2015	(Ch-2)
Operational Test Start	JUN 2016	JUN 2016	DEC 2016	JUL 2016	
First Unit Equipped	JAN 2017	JAN 2017	JUL 2017	JAN 2017	
Full Rate Production	JAN 2017	JAN 2017	JUL 2017	JAN 2017	
IOC	APR 2017	APR 2017	OCT 2017	APR 2017	
FOC	MAR 2020	MAR 2020	SEP 2020	MAR 2020	

Change Explanations

(Ch-1) The Milestone C current estimate changed from June 2013 to October 2013 to reflect the actual Milestone C approval date.

(Ch-2) The First Production Delivery current estimate changed from January 2015 to March 2015 to reflect the current production schedule.

Acronyms and Abbreviations

FOC - Full Operational Capability

Performance

Characteristics	SAR Baseline Dev Est	Current APB Production 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	The capability, system, and/or service must fully support execution of all operational activities and information exchanges identified in 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	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	To be determined during IA Cyber Security Testing.	PIM management estimates that the program will continue to achieve the Threshold requirement.

	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 communicat-ions. 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	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 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,	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 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,		

	including availability, integrity, authentica-tion, confidential-ity, and non-repudiation, and issuance of an ATO by the DAA, and 5) Support-ability requirements to include SAASM, Spectrum and JTRS require-ments.	authentica-tion, confidentiality, and non-repudiation, and issuance of an ATO by the DAA, and 5) Support-ability requirements to include SAASM, Spectrum and JTRS requirements.	authentica-tion, confidentiality, and non-repudiation, and issuance of an IATO or ATO by the DAA, and 5) Support-ability requirements to include SAASM, Spectrum and JTRS requirements.		
KPP 4: Digital Fire Control System (DFCS)	Receive, process, and transmit technical fire control data from/to AFATDS to independent-ly compute and execute precision fire missions. Must be able to host current and future software upgrades.	Must be able to independentl y compute and execute precision fire missions.	Receive, process, compute and transmit technical fire control data from/to AFATDS to execute fire missions. Must be able to host current and future software upgrades.	Threshold achieved.	PIM management estimates that the program will continue to achieve the Threshold requirement.
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	6 rpm un-guided, 3 rpm guided	For un-guided projectiles, max rate of fire 4 rpm for 3 minutes with a sustained rate of fire of 1 rpm until limited by	Threshold on track to achieve.	PIM management estimates that the program will continue to achieve the Threshold requirement.

	tube temperature sensor. For guided munitions, fire 3 rpm.		tube temperature sensor.		
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.	Maximum range when firing guided munitions shall be no less than 40 km.	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 30 km IAW ICAO standard conditions.	Min range = Threshold achieved; Max range unassisted = Threshold achieved; Max range assisted = Threshold achieved.	PIM management estimates that the program will continue to achieve the Threshold requirement.
KPP 7: Self-Propelled Howitzer Reliability	Will have a reliability of 84% probability of completing an 18-hour combat mission.	84 percent	Will have a reliability of 75 percent probability of completing an 18-hour combat mission.	Threshold achieved.	PIM management estimates that the program will continue to achieve the Threshold requirement.
KPP 8: Self-Propelled Howitzer Availability	The Howitzer shall	Howitzer Am 83% and Ao	The Howitzer shall	To be determined	PIM management

(Materiel Availability/Operational Availability)	demonstrate a Am of 83% and an Ao measured at the Fires Battalion level of 95%	95%.	demonstrate a Am of 81% and an Ao of 78%.	at IOT.	estimates that the program will achieve the Threshold requirement.
KPP 9: Carrier Ammunition Tracked Reliability	Will have a reliability of 90% probability of completing an 18-hour combat mission.	90 percent	Will have a reliability of 84 percent probability of completing an 18-hour combat mission.	Threshold achieved.	PIM management estimates that the program will continue to achieve the Threshold requirement.
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%	CAT Am 72% and Ao 95%.	The CAT shall demonstrate a Am of 66% and an Ao of 85%.	To be determined at IOT.	PIM management estimates that the program will achieve the Threshold requirement.

Classified Performance information is provided in the classified annex to this submission.

Requirements Source

Capability Production Document (CPD) v3.3 dated August 19, 2012

Change Explanations

None

Memo

In the December 2012 SAR, the Current Estimate column contained the same wording as the Threshold column. The intent is to show that PIM management expects to meet the Threshold requirement. In this submission the Current Estimate is written to be more succinct.

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 IEA - Department of Defense Information Enterprise Architecture
DoDAF - Department of Defense Architecture Framework
GESP - GIG Enterprise Service Profile
GIG - Global Information Grid
IA - Information Assurance
IATO - Interim Approval to Operate
IAW - In Accordance With
ICAO - International Civil Aviation Organization
IOT - Initial Operational Test
IP - Information Processing
IT - Information Technology
JTRS - Joint Tactical Radio System
km - Kilometers
KPP - Key Performance Parameter
MACS - Modular Artillery Charge System
rpm - Rounds per Minute
SAASM - Selective Availability Anti-Spoofing Module
TV - Technical View

Track to Budget

RDT&E

Appn		BA	PE	
Army	2040	05	0210609A	
	Project		**Name**	
	ED8		Paladin Integrated Management	
Army	2040	05	0604854A	
	Project		**Name**	
	516		Artillery Systems - Engineering Manufacturing and Development	(Sunk)

Procurement

Appn		BA	PE
Army	2033	01	0210609A
	Line Item		**Name**
	2073GZ0410		Paladin PIM Mod In Service
	Notes:		Standard Study Number GZ0410

Cost and Funding

Cost Summary

Total Acquisition Cost and Quantity

	BY2013 $M			BY2013 $M	TY $M		
Appropriation	SAR Baseline Dev Est	Current APB Production Objective/Threshold		Current Estimate	SAR Baseline Dev Est	Current APB Production Objective	Current Estimate
RDT&E	1040.3	1084.3	1192.7	1083.9	1041.7	1102.0	1102.3
Procurement	5862.3	5759.3	6335.2	5778.3	6785.4	6850.5	6850.9
Flyaway	--	--	--	5329.5	--	--	6313.3
Recurring	--	--	--	5272.9	--	--	6252.8
Non Recurring	--	--	--	56.6	--	--	60.5
Support	--	--	--	448.8	--	--	537.6
Other Support	--	--	--	323.3	--	--	388.9
Initial Spares	--	--	--	125.5	--	--	148.7
MILCON	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Acq O&M	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	6902.6	6843.6	N/A	6862.2	7827.1	7952.5	7953.2

Confidence Level for Current APB Cost 50% -

This estimate, like all previous Cost Assessment and Program Evaluation (CAPE) estimates, is built upon a product-oriented work breakdown structure; is based on historical actual cost information to the maximum extent possible; and, most importantly, is based on conservative assumptions that are consistent with actual demonstrated contractor and government performance for a series of acquisition programs in which the Department has been successful.

It is difficult to calculate mathematically the precise confidence levels associated with life-cycle cost estimates prepared for Major Defense Acquisition Program (MDAPs) programs. 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.

The Base Year for the program has been updated from FY 2011 to FY 2013 using the following deflators:

Appn Category	Deflation Factor
RDT&E	1.03939843
Procurement	1.03939843

Quantity	SAR Baseline Dev Est	Current APB Production	Current Estimate
RDT&E	2	2	2
Procurement	580	556	556
Total	582	558	558

A quantity of 2 PIM sets is input for the RDT&E phase quantity. One and a half (1.5) PIM sets are RDT&E-funded LRIP which were procured in FY 2014 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 PAUC calculation purposes.

The procurement quantity represents 556 PIM Sets (1 SPH and 1 Carrier Ammunition Tracked).

Cost and Funding

Funding Summary

Appropriation and Quantity Summary
FY2015 President's Budget / December 2013 SAR (TY$ M)

Appropriation	Prior	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019	To Complete	Total
RDT&E	697.1	121.3	83.3	152.4	42.1	6.1	0.0	0.0	1102.3
Procurement	188.6	199.5	247.4	403.9	465.4	665.7	667.8	4012.6	6850.9
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 2015 Total	885.7	320.8	330.7	556.3	507.5	671.8	667.8	4012.6	7953.2
PB 2014 Total	915.0	340.8	395.1	428.4	500.3	621.4	612.4	4090.8	7904.2
Delta	-29.3	-20.0	-64.4	127.9	7.2	50.4	55.4	-78.2	49.0

Quantity	Undistributed	Prior	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019	To Complete	Total
Development	2	0	0	0	0	0	0	0	0	2
Production	0	0	17	18	30	36	60	60	335	556
PB 2015 Total	2	0	17	18	30	36	60	60	335	558
PB 2014 Total	2	17	18	18	18	36	60	60	353	582
Delta	0	-17	-1	0	12	0	0	0	-18	-24

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	--	--	--	--	--	--	147.5
2011	--	--	--	--	--	--	176.2
2012	--	--	--	--	--	--	126.3
2013	--	--	--	--	--	--	149.7
2014	--	--	--	--	--	--	121.3
2015	--	--	--	--	--	--	83.3
2016	--	--	--	--	--	--	152.4
2017	--	--	--	--	--	--	42.1
2018	--	--	--	--	--	--	6.1
Subtotal	**2**	**--**	**--**	**--**	**--**	**--**	**1102.3**

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

Fiscal Year	Quantity	End Item Recurring Flyaway BY 2013 $M	Non End Item Recurring Flyaway BY 2013 $M	Non Recurring Flyaway BY 2013 $M	Total Flyaway BY 2013 $M	Total Support BY 2013 $M	Total Program BY 2013 $M
2007	--	--	--	--	--	--	1.7
2008	--	--	--	--	--	--	37.0
2009	--	--	--	--	--	--	64.1
2010	--	--	--	--	--	--	152.7
2011	--	--	--	--	--	--	178.8
2012	--	--	--	--	--	--	126.1
2013	--	--	--	--	--	--	146.8
2014	--	--	--	--	--	--	115.9
2015	--	--	--	--	--	--	77.9
2016	--	--	--	--	--	--	139.7
2017	--	--	--	--	--	--	37.8
2018	--	--	--	--	--	--	5.4
Subtotal	**2**	**--**	**--**	**--**	**--**	**--**	**1083.9**

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	--	123.5	28.9	17.2	169.6	19.0	188.6
2014	17	130.6	30.6	18.2	179.4	20.1	199.5
2015	18	171.2	71.4	--	242.6	4.8	247.4
2016	30	278.2	81.9	10.6	370.7	33.2	403.9
2017	36	322.3	94.5	14.5	431.3	34.1	465.4
2018	60	505.1	120.1	--	625.2	40.5	665.7
2019	60	504.9	118.5	--	623.4	44.4	667.8
2020	60	484.8	118.7	--	603.5	48.2	651.7
2021	60	489.4	121.8	--	611.2	50.8	662.0
2022	60	495.7	128.2	--	623.9	48.2	672.1
2023	60	503.1	131.7	--	634.8	48.0	682.8
2024	60	511.2	138.8	--	650.0	50.7	700.7
2025	35	308.7	106.2	--	414.9	41.3	456.2
2026	--	--	66.9	--	66.9	30.8	97.7
2027	--	--	65.9	--	65.9	23.5	89.4
Subtotal	**556**	**4828.7**	**1424.1**	**60.5**	**6313.3**	**537.6**	**6850.9**

Annual Funding BY$
2033 | Procurement | Procurement of Weapons and Tracked Combat Vehicles, Army

Fiscal Year	Quantity	End Item Recurring Flyaway BY 2013 $M	Non End Item Recurring Flyaway BY 2013 $M	Non Recurring Flyaway BY 2013 $M	Total Flyaway BY 2013 $M	Total Support BY 2013 $M	Total Program BY 2013 $M
2013	--	119.1	27.9	16.6	163.6	18.3	181.9
2014	17	124.2	29.1	17.3	170.6	19.1	189.7
2015	18	159.8	66.7	--	226.5	4.5	231.0
2016	30	254.7	74.9	9.7	339.3	30.4	369.7
2017	36	289.3	84.8	13.0	387.1	30.6	417.7
2018	60	444.4	105.7	--	550.1	35.6	585.7
2019	60	435.5	102.3	--	537.8	38.3	576.1
2020	60	410.0	100.3	--	510.3	40.8	551.1
2021	60	405.8	101.0	--	506.8	42.1	548.9
2022	60	402.9	104.2	--	507.1	39.2	546.3
2023	60	400.9	105.0	--	505.9	38.2	544.1
2024	60	399.4	108.5	--	507.9	39.6	547.5
2025	35	236.5	81.2	--	317.7	31.7	349.4
2026	--	--	50.3	--	50.3	23.1	73.4
2027	--	--	48.5	--	48.5	17.3	65.8
Subtotal	**556**	**4082.5**	**1190.4**	**56.6**	**5329.5**	**448.8**	**5778.3**

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

Fiscal Year	Quantity	End Item Recurring Flyaway (Aligned with Quantity) BY 2013 $M
2013	--	--
2014	17	124.8
2015	18	132.2
2016	30	220.3
2017	36	264.3
2018	60	440.6
2019	60	440.6
2020	60	440.6
2021	60	440.5
2022	60	440.6
2023	60	440.5
2024	60	440.6
2025	35	256.9
2026	--	--
2027	--	--
Subtotal	**556**	**4082.5**

Low Rate Initial Production

	Initial LRIP Decision	Current Total LRIP
Approval Date	10/21/2013	10/21/2013
Approved Quantity	67	67
Reference	Milestone C ADM	Milestone C ADM
Start Year	2014	2014
End Year	2017	2017

The Current Total LRIP Quantity is more than 10% of the total production quantity due to authorization per Milestone C Acquisition Decision Memorandum (ADM).

The planned LRIP buy is 66.5 PIM sets. One and one-half (1.5) PIM sets are RDT&E-funded LRIP assets procured in FY 2014 for Full Up System Live Fire Testing. The remaining 65 PIM sets are Procurement-funded.

Foreign Military Sales

None

Nuclear Costs

None

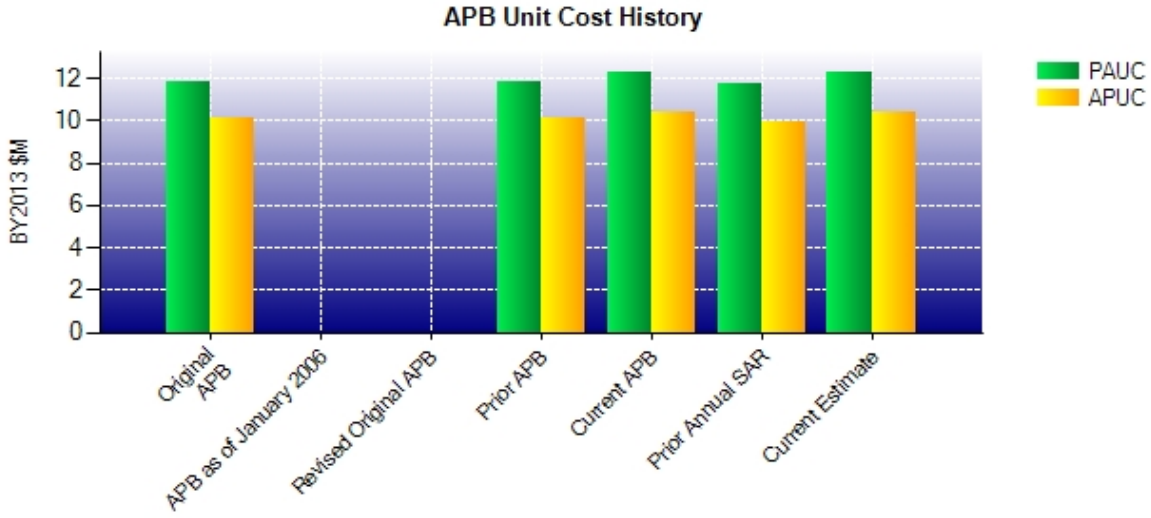
Unit Cost

Unit Cost Report

	BY2013 $M	BY2013 $M	
Unit Cost	**Current UCR Baseline (MAR 2014 APB)**	**Current Estimate (DEC 2013 SAR)**	**BY % Change**
Program Acquisition Unit Cost (PAUC)			
Cost	6843.6	6862.2	
Quantity	558	558	
Unit Cost	12.265	12.298	+0.27
Average Procurement Unit Cost (APUC)			
Cost	5759.3	5778.3	
Quantity	556	556	
Unit Cost	10.358	10.393	+0.33

	BY2013 $M	BY2013 $M	
Unit Cost	**Original UCR Baseline (MAR 2012 APB)**	**Current Estimate (DEC 2013 SAR)**	**BY % Change**
Program Acquisition Unit Cost (PAUC)			
Cost	6902.6	6862.2	
Quantity	582	558	
Unit Cost	11.860	12.298	+3.69
Average Procurement Unit Cost (APUC)			
Cost	5862.3	5778.3	
Quantity	580	556	
Unit Cost	10.107	10.393	+2.83

Unit Cost History



		BY2013 $M		TY $M	
	Date	PAUC	APUC	PAUC	APUC
Original APB	MAR 2012	11.860	10.107	13.449	11.699
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	MAR 2012	11.860	10.107	13.449	11.699
Current APB	MAR 2014	12.265	10.358	14.252	12.321
Prior Annual SAR	DEC 2012	11.686	9.939	13.581	11.821
Current Estimate	DEC 2013	12.298	10.393	14.253	12.322

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	0.358	0.238	0.027	0.000	0.077	0.000	0.104	0.804	14.253

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	0.335	0.163	0.027	0.000	-0.006	0.000	0.104	0.623	12.322

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	OCT 2013
IOC	N/A	APR 2017	N/A	APR 2017
Total Cost (TY $M)	N/A	7827.1	N/A	7953.2
Total Quantity	N/A	582	N/A	558
Prog. Acq. Unit Cost (PAUC)	N/A	13.449	N/A	14.253

Cost Variance

Summary Then Year $M				
	RDT&E	Proc	MILCON	Total
SAR Baseline (Dev Est)	1041.7	6785.4	--	7827.1
Previous Changes				
Economic	+12.9	+188.9	--	+201.8
Quantity	--	--	--	--
Schedule	--	--	--	--
Engineering	--	--	--	--
Estimating	-6.3	-110.2	--	-116.5
Other	--	--	--	--
Support	--	-8.2	--	-8.2
Subtotal	+6.6	+70.5	--	+77.1
Current Changes				
Economic	+1.0	-2.9	--	-1.9
Quantity	--	-189.8	--	-189.8
Schedule	--	+14.9	--	+14.9
Engineering	--	--	--	--
Estimating	+53.0	+106.7	--	+159.7
Other	--	--	--	--
Support	--	+66.1	--	+66.1
Subtotal	+54.0	-5.0	--	+49.0
Adjustments	--	--	--	--
Total Changes	+60.6	+65.5	--	+126.1
CE - Cost Variance	1102.3	6850.9	--	7953.2
CE - Cost & Funding	1102.3	6850.9	--	7953.2

Summary Base Year 2013 $M				
	RDT&E	Proc	MILCON	Total
SAR Baseline (Dev Est)	1040.3	5862.3	--	6902.6
Previous Changes				
Economic	--	--	--	--
Quantity	--	--	--	--
Schedule	--	--	--	--
Engineering	--	--	--	--
Estimating	-3.9	-91.3	--	-95.2
Other	--	--	--	--
Support	--	-6.4	--	-6.4
Subtotal	-3.9	-97.7	--	-101.6
Current Changes				
Economic	--	--	--	--
Quantity	--	-145.4	--	-145.4
Schedule	--	--	--	--
Engineering	--	--	--	--
Estimating	+47.5	+98.9	--	+146.4
Other	--	--	--	--
Support	--	+60.2	--	+60.2
Subtotal	+47.5	+13.7	--	+61.2
Adjustments	--	--	--	--
Total Changes	+43.6	-84.0	--	-40.4
CE - Cost Variance	1083.9	5778.3	--	6862.2
CE - Cost & Funding	1083.9	5778.3	--	6862.2

Previous Estimate: December 2012

RDT&E	$M	
Current Change Explanations	**Base Year**	**Then Year**
Revised escalation indices. (Economic)	N/A	+1.0
Adjustment for current and prior escalation. (Estimating)	-1.4	-1.4
Revised estimate to align with Cost Assessment and Program Evaluation (CAPE) Independent Cost Estimate (ICE). (Estimating)	+48.9	+54.4
RDT&E Subtotal	+47.5	+54.0

Procurement	$M	
Current Change Explanations	**Base Year**	**Then Year**
Revised escalation indices. (Economic)	N/A	-2.9
Adjustment for current and prior escalation. (Estimating)	+2.0	+2.2
Compressed procurement buy profile. (Schedule)	0.0	+14.9
Total Quantity variance resulting from a decrease of 24 PIM vehicle sets from 580 to 556. (Subtotal)	-141.9	-185.3
Quantity variance resulting from a decrease of 24 sets from 580 to 556. (Quantity)	(-145.4)	(-189.8)
Allocation to Estimating resulting from Quantity change. (Estimating) (QR)	(+3.5)	(+4.5)
Revised estimate to align with CAPE ICE. (Estimating)	+93.4	+100.0
Adjustment for current and prior escalation. (Support)	+0.1	0.0
Revised estimate in Other Support to align with CAPE ICE. (Support)	+15.3	+13.0
Revised estimate in Initial Spares to align with CAPE ICE. (Support)	+44.8	+53.1
Procurement Subtotal	+13.7	-5.0

(QR) Quantity Related

Contracts

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	320.0	N/A	N/A	305.1	305.1

Target Price Change Explanation

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to a contract modification.

Variance	Cost Variance	Schedule Variance
Cumulative Variances To Date (2/21/2014)	+16.2	-6.6
Previous Cumulative Variances	+15.5	-3.3
Net Change	+0.7	-3.3

Cost and Schedule Variance Explanations

The favorable net change in the cost variance is due to increased billings for receipt of late material. Although the Percent Variance appears significant, the absolute Net Change is less than $1.0M and is considered insignificant.

The unfavorable net change in the schedule variance is due to delays in Fire Control, Interdivisional Work Order design activities, Power Package/Drive Train, and fewer contractor test activities that were planned to resolve technical issues. The schedule variance is expected to improve. The cumulative Schedule Performance Index has remained steady at 0.97.

Appropriation: Procurement

Contract Name	**PIM-LRIP BASE**
Contractor	BAE Systems Land & Armaments L.P.
Contractor Location	1100 Bairs Road York, PA 17408
Contract Number, Type	W56HZV-14-C-0002, FPIF
Award Date	October 30, 2013
Definitization Date	October 30, 2013

Initial Contract Price ($M)			Current Contract Price ($M)			Estimated Price at Completion ($M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
217.5	197.5	19	217.5	197.5	19	217.5	217.5

Variance	Cost Variance	Schedule Variance
Cumulative Variances To Date (2/21/2014)	+1.1	-0.3
Previous Cumulative Variances	--	--
Net Change	+1.1	-0.3

Cost and Schedule Variance Explanations

The favorable cumulative cost variance is due to insignificant cost variances during the first three Integrated Program Management Report (IPMR) submissions for the LRIP contract.

The unfavorable cumulative schedule variance is due to insignificant schedule variances during the first three IPMR submissions for the LRIP contract.

Contract Comments

This is the first time this contract is being reported.

Sixty-five percent of the Performance Measurement Baseline remains in Undistributed Budget (UB). The balance of the UB will continue to be detail planned in future reporting periods.

The target price includes data for all exercised Fixed Price Incentive Fee (FPIF) and Cost Plus Fixed Fee Contract Line Item Numbers (CLINs); however, the contract ceiling price represents FPIF CLINs only.

Deliveries and Expenditures

Delivered to Date	Plan to Date	Actual to Date	Total Quantity	Percent Delivered
Development	0	0	2	0.00%
Production	0	0	556	0.00%
Total Program Quantity Delivered	0	0	558	0.00%

Expended and Appropriated (TY $M)			
Total Acquisition Cost	7953.2	Years Appropriated	8
Expended to Date	561.3	Percent Years Appropriated	38.10%
Percent Expended	7.06%	Appropriated to Date	1206.5
Total Funding Years	21	Percent Appropriated	15.17%

The above data is current as of 2/28/2014.

Operating and Support Cost

PIM

Assumptions and Ground Rules

Cost Estimate Reference:
The current estimate for O&S cost is based on the Milestone (MS) C Army Cost Position (ACP) for Operations and Maintenance appropriations, Military Personnel appropriations, and Ammunition appropriations (approved October 18, 2013). The O&S cost total also includes Modifications. The current estimate for Modifications is based on MS C ACP methodology, but calculates off the manufacturing estimate from the October 21, 2013 Office of the Secretary of Defense (OSD) Cost Assessment and Program Evaluation (CAPE) Independent Cost Estimate (ICE).

Sustainment Strategy:
The PIM product support concept will consist of Operational/Field and Sustainment support. Operation/Field support will be through the use of Brigade Support Battalions using the Fires Forward Support Company and the Supply Support Activity. Maintenance support will consist of the Army two-level maintenance strategy:

- Field Maintenance - Remove, replace, or repair, in field
- Sustainment Maintenance - Repair and return to supply

PIM O&S costs are based on the Army Procurement Objective of 556 fielded PIM sets and an Economic Useful Life (EUL) of 26 years with a year break in service for overhaul assumed at mid-life.

Antecedent Information:
O&S costs for the M109A6 Paladin / M992A2 Field Artillery Ammunition Support Vehicle (antecedent system) are based on various sources including the Operating and Support Management Information System, the Army Manpower Allocation Requirements Criteria Database, and historical actuals from the program office. Operational Tempos are based on the G-3/5/7 Forces Command model. The antecedent system assumes the same quantities and EUL as the PIM system.

Unitized O&S Costs BY2013 $K		
Cost Element	**PIM Average Annual Cost Per Set**	**M109A6 Paladin / M992A2 FAASV (Antecedent) Average Annual Cost Per Set**
Unit-Level Manpower	638.860	638.860
Unit Operations	133.246	133.110
Maintenance	127.171	98.377
Sustaining Support	108.544	108.544
Continuing System Improvements	82.097	56.080
Indirect Support	250.319	250.319
Other	0.000	0.000
Total	1340.237	1285.290

Unitized Cost Comments:

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.

PIM Total O&S Cost = Average Annual O&S Cost Per Set * Number of Sets * EUL = 1340.237K * 556 * 26 = 19374.5M
Paladin/FAASV Total O&S Cost = Average Annual O&S Cost Per Set * Number of Sets * EUL = 1285.290K * 556 * 26 = 18580.2M

	Total O&S Cost $M			
	Current Production APB Objective/Threshold		**Current Estimate**	
	PIM		**PIM**	**M109A6 Paladin / M992A2 FAASV (Antecedent)**
Base Year	19911.1	21902.2	19374.5	18580.2
Then Year	30867.8	N/A	28766.0	N/A

Total O&S Costs Comments:

In the December 2012 SAR, Total O&S Cost was $10160.5M in BY 2011. In BY 2013, this value is $10524.6M.

O&S Cost Variance		
Category	**Base Year 2013 $M**	**Change Explanation**
Prior SAR Total O&S Estimate December 2012	10524.6	
Cost Estimating Methodology	+5692.5	Broader inclusion of Military Personnel costs (Healthcare costs, Recruiting, Morale, Welfare and Recreation, etc.) for increased Army/OSD O&S costing synchronization, inclusion of all Battalion personnel for military pay, and miscellaneous updates. The quantity changed from 580 to 556 PIM sets.
Cost Data Update	0.0	
Labor Rate	0.0	

Energy Rate	0.0	
Technical Input	0.0	
Programmatic/Planning Factors	+3157.4	EUL changed from 20 to 26 years (per April 2012 Assistant Secretary of the Army for Acquisition, Logistics, and Technology policy).
Other	0.0	
Total Changes	+8849.9	
Current Estimate	19374.5	

The O&S cost increase is not due to an increased cost to the Army as a result of PIM.

Disposal Costs:

PIM Lifecycle Demilitarization / Disposal costs of $62.3M (BY 2013) are excluded from the O&S cost estimate.