RCS: DD-A&T(Q&A)823-471

Armored Multi-Purpose Vehicle (AMPV)

As of FY 2021 President's Budget

Defense Acquisition Management
Information Retrieval
(DAMIR)

Table of Contents

Common Acronyms and Abbreviations for MDAP Programs

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

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

Program Information

Program Name
Armored Multi-Purpose Vehicle (AMPV)

DoD Component
Army

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References

SAR Baseline (Production Estimate)

Army Acquisition Executive (AAE) Approved Acquisition Program Baseline (APB) dated March 14, 2019

Approved APB

Army Acquisition Executive (AAE) Approved Acquisition Program Baseline (APB) dated March 14, 2019

Mission and Description

The Armored Multi-Purpose Vehicle (AMPV) is the materiel solution for replacement of the Army's M113 Armored Personnel Carrier Family of Vehicles (FoV) within the Armored Brigade Combat Team (ABCT). It will mitigate current and future capability gaps in force protection, mobility, reliability and interoperability across the spectrum of conflict. The AMPV will replace five mission roles currently performed by the M113 FoV by transferring the current M113 Mission Equipment Packages to a new Military Vehicle Derivative platform. In total, the AMPV FoV will account for approximately 30% of the ABCT's tracked fleet and consists of the following five variants:

Mission Command Vehicle: This platform enables effective mission command planning and execution for both the Command Post and Tactical Command Vehicle versions. It will host current Battle Command Systems, communications equipment future replacements and upgrades of hardware and software.

Medical Treatment Vehicle: This platform will provide a protected surgical environment with adequate lighting and accessible medical equipment. It will provide a capability for immediate medical care for one patient by a medical crew of four.

Medical Evacuation Vehicle: This platform will conduct combat medical evacuation activities and provide evacuation for up to four litter or six ambulatory patients with a crew of three medical attendants.

General Purpose Vehicle: This platform will operate throughout the battle space by conducting re-supply, maintenance, casualty evacuation and other tasks within the formation.

Mortar Carrier Vehicle: This platform will provide immediate responsive fire support to conduct fast-paced offensive operations.

Executive Summary

Program Highlights Since Last Report

The AMPV program requirements are stable, funding is adequate to meet cost, schedule, and performance objectives. The 2018 SAR identified increased risk associated with the BAE's ability to ramp-up to the required production rate. This risk has been realized as an issue, and the program has adjusted its schedule within APB thresholds to accommodate a 4-6 month shift in production deliveries. The program is reporting increased risk in the 2019 SAR due to a schedule risk associated with the BAE's ability to deliver LRIP vehicles to support developmental/operational testing and fielding in support of APB thresholds. Overall, AMPV continues to execute within its threshold APB cost, schedule and performance parameters.

As stated above, there is risk identified with BAE's ability to deliver LRIP vehicles to support test and fielding. Production started on time in March 2019 and as of January 24, 2020, BAE has 24 LRIP vehicles and all five variants on the production line. Prior to initiating efforts on the production hulls, BAE utilized "rabbit" hulls (non-LRIP vehicles) to refine and validate the new manufacturing processes to mitigate schedule risk associated with the required production ramp-up during LRIP. Despite this mitigation effort, BAE encountered numerous issues in the weld process. BAE and PM MAV assessed a 4-6 month shift in vehicle deliveries due to these issues, leading to BAE submitting a revised delivery plan in December 2019 to address welding, machining and assembly risks to minimize the overall program impacts. The revised schedule supports Army Test and Evaluation Command (ATEC) and United States Army Forces Command (FORSCOM) testing and fielding plans. The program worked closely with BAE, ATEC and FORSCOM to mitigate the impacts of a delivery delay and to ensure the overall program remains on schedule. Initial analysis indicates a shift to Initial Operational Test & Evaluation (IOT&E) from May-July 2021 to August – early November 2021 and a subsequent shift of First Unit Equipped (FUE) (September 2021 to 2nd quarter FY 2022), FRP (October 2021 to 2nd quarter FY 2022) and IOC (March 2022 to 3rd quarter FY 2022). The PM assesses a medium risk to meeting these date shifts, and will continue to conduct schedule risk assessments as BAE generates production data. Currently, all projections are still within APB threshold parameters.

The Army recently reprioritized the AMPV fielding strategy to better balance the needs of the active Army with the European Deterrence Initiative (EDI). The program will now complete the fill of one brigade set (131 vehicles) to the 2/3ID (FUE) in FY 2022, one brigade set for Army Pre-positioned Stock in early FY 2023, and one brigade set to the 1/3ID in late FY 2023.

The program continued Developmental Testing (DT) and Live Fire Testing (LFT) in 2019. Post Milestone C (MS C) DT continued at Aberdeen and Yuma Test Centers in support of requirements compliance verification, resulting in 100% of all planned EMD performance specification requirements being satisfied during test. The program commenced contractor risk mitigation testing on EMD prototype End of Contract Refurbishment vehicles which were upgraded to the LRIP Design. Contractor risk mitigation testing is planned to run through June 2020. The first phase of AMPV System Level LFT successfully concluded in September 2019. AMPV designs tested during Phase 1 met KPP 2/3 Survivability/Force Protection requirements. The second phase of the System level LFT program is scheduled to commence 2QFY2020 with initial events conducted against variants not yet tested. This second phase provides data to support the EDI as well as the program of record. LRIP Government Test planning efforts commenced and continued as details were being developed in support of the AMPV Initial Operational Test and Evaluation (Operational Testing), Production Qualification Testing (Developmental Testing) and Full Up System Level (FUSL) LFT. An AMPV Test and Evaluation Master Plan MS C and LRIP Phase Change Page was developed, released and approved by the Army and OSD. It reflects a more efficient and effective FUSL LFT Matrix developed by the Army and OSD Live Fire Test and Evaluation Community.

Overall program system performance is tracking to the APB KPP characteristics. Verification is ongoing with testing. The PMO estimates that the program will achieve all Threshold KPP Performance characteristics. The program transitioned from a CDD to a CPD. CPD requirements were updated and approved by the Vice Chief of Staff of the Army (VCSA) on January 23, 2019. There was no change to the Army Acquisition Objective (AAO) or performance requirements since the last report, demonstrating that the AMPV Program requirements are stable.

The ADM was signed on January 25, 2019 by the Army Acquisition Executive allowing AMPV to enter MS C and LRIP. The ADM funds the AMPV program to the ICE and approves an LRIP Quantity of up to 551 vehicles. This quantity is above 10% of the total production quantity and is in support of EDI and an U.S. Army Europe Operational Needs Statement reported in

previous SARs.

The FY 2020 Appropriations Bill reduces the AMPV as follows: 1) a rescission of $37.1M was executed on FY 2019 Weapons and Tracked Combat Vehicles (WTCV), 2) FY 2020 RDT&E reduction of $12.9M, 3) FY 2020 WTCV reduction of $33.7M, and 4) FY 2020 OCO reduction of $7.1M. The $77.9M reduction in procurement/OCO funding equates to a loss of approximately 25 vehicles in “buying power.” The program is able to absorb these cuts due to carry over of funds from previous FYs. The approved AAO remains the same at 2,897 vehicles and total program funding is adequate to meet cost, schedule and performance in the approved baseline.

From an acquisition standpoint, LRIP Option Year 1 and Option Year 2 were exercised in January and February 2019 respectively. LRIP Option Year 3 was exercised on January 21, 2020 for 160 additional vehicles. This brings the total LRIP vehicles on contract to 457 vehicles and $1,835.9M has been obligated on the contract, inclusive of EMD and LRIP 1-3 options.

If funded to FY 2021 PB request, funding is adequate to meet cost, schedule, and performance objectives. However, due to the increased production risk, the PM’s recommendation is to not certify the program until BAE demonstrates the ability to deliver LRIP vehicles on schedule.

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

History of Significant Developments Since Program Initiation

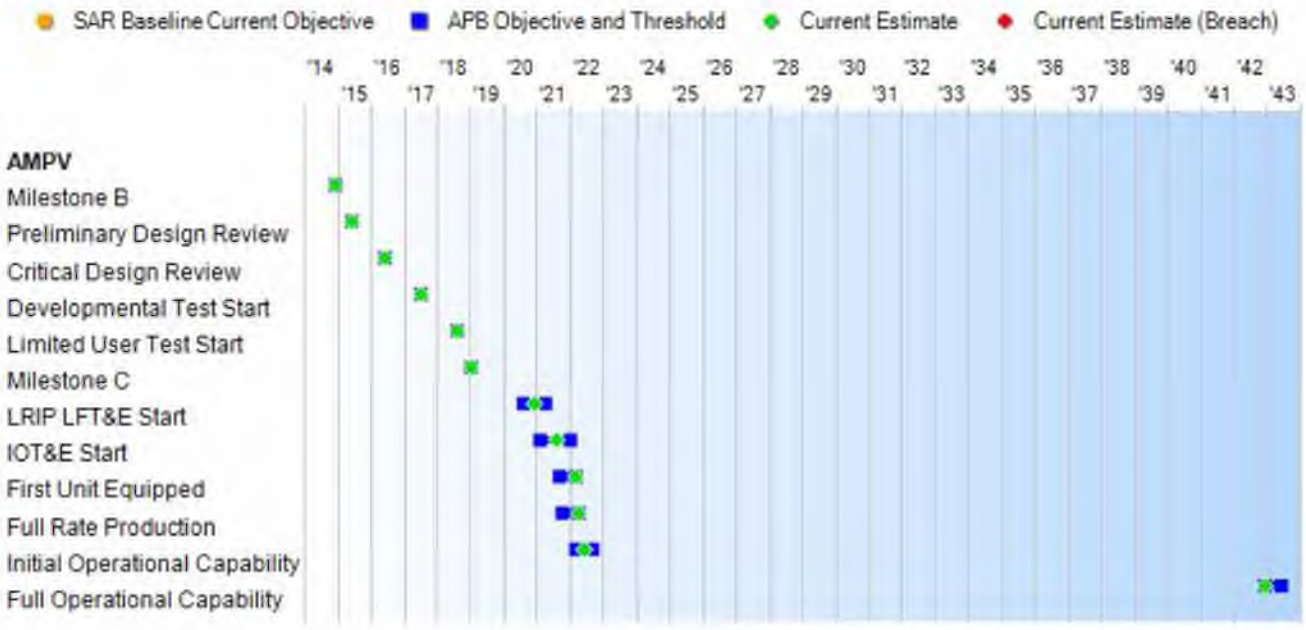
History of Significant Developments Since Program Initiation	
Date	**Significant Development Description**
June 2013	AMPV CDD approved.
December 2014	AMPV Milestone B DAB.
December 2014	The DAE ADM authorizes AMPV to enter the acquisition lifecycle at Milestone B. The ADM directs the Army to fund the AMPV program to the OSD CAPE ICE.
December 2014	BAE Systems Land & Armaments is awarded a Cost Plus Incentive Fee EMD contract.
March 2015	The System Requirements Review (SRR) was completed. The SRR deemed the program ready to proceed into preliminary design.
May 2015	Development APB approved.
June 2015	Completed the Preliminary Design Review ensuring the allocated baseline was properly documented, assessed to be consistent with CDD requirements and under configuration control.
June 2016	Completed Critical Design review demonstrating that the program was ready to proceed to prototype production. Performance risks were understood and will be characterized with prototype testing.
October 2016	CDD revised to incorporate changes to KPP 2 – Survivability.
December 2016	Roll-out ceremony for first AMPV prototype.
January 2017	First AMPV Prototype Delivered.
July 2017	Developmental Test started.
September 2017	AMPV Milestone B ADM was amended to increase LRIP quantities from 289 to 551 vehicles.
March 2018	Final EMD prototype delivered.
August 2018	Functional Configuration Audit and System Verification Review completed.
September 2018	Limited User Test Completed.
October 2018	Production Readiness Review completed.
December 2018	AMPV Milestone C Army Systems Acquisition Review Council approved entrance into LRIP.
January 2019	AMPV CPD approved.
January 2019	Army Acquisition Executive signed the Milestone C ADM authorizing AMPV to enter LRIP. The ADM directs the Army to fund the AMPV program to the OSD CAPE ICE.
January 2019	LRIP Option Year 1 and the first increment of LRIP Option Year 2 exercised to BAE Systems Land & Armaments to begin LRIP production.
January 2020	LRIP Option Year 3 exercised to BAE Systems.

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



Schedule Events					
Events	SAR Baseline Production Estimate	Current APB Production Objective/Threshold		Current Estimate	
Milestone B	Dec 2014	Dec 2014	Dec 2014	Dec 2014	
Preliminary Design Review	Jun 2015	Jun 2015	Jun 2015	Jun 2015	
Critical Design Review	Jun 2016	Jun 2016	Jun 2016	Jun 2016	
Developmental Test Start	Jul 2017	Jul 2017	Jul 2017	Jul 2017	
Limited User Test Start	Aug 2018	Aug 2018	Aug 2018	Aug 2018	
Milestone C	Jan 2019	Jan 2019	Jan 2019	Jan 2019	
LRIP LFT&E Start	Aug 2020	Aug 2020	Apr 2021	Dec 2020	(Ch-1)
IOT&E Start	Feb 2021	Feb 2021	Jan 2022	Aug 2021	(Ch-2)
First Unit Equipped	Sep 2021	Sep 2021	Mar 2022	Mar 2022	(Ch-2)
Full Rate Production	Oct 2021	Oct 2021	Apr 2022	Apr 2022	(Ch-2)
Initial Operational Capability	Mar 2022	Mar 2022	Sep 2022	Jun 2022	(Ch-2)
Full Operational Capability	Dec 2042	Dec 2042	Jun 2043	Dec 2042	

Change Explanations

(Ch-1) The current estimate for LRIP LFT&E Start changed from August 2020 to December 2020 due to projected late deliveries of LFT&E vehicles from BAE.
(Ch-2) The current estimates for IOT&E Start, First Unit Equipped, Full Rate Production, and Initial Operational Capability changed from February 2021 to August 2021, September 2021 to March 2022, October 2021 to April 2022, and March 2022 to June 2022, respectively, due to projected late deliveries of LRIP vehicles from BAE.

Notes

Schedule reflects Production APB. The 2018 SAR was written against the Development APB.

Acronyms and Abbreviations

FUE - First Unit Equipped
IOT&E - Initial Operational Test & Evaluation
LFT&E - Live Fire Test & Evaluation

Performance

Performance Characteristics				
SAR Baseline Production Estimate	**Current APB Production Objective/Threshold**		**Demonstrated Performance**	**Current Estimate**
KPP 1 Net Ready				
The AMPV will enable a net-centric military capability by providing sufficient SWaP capacity to integrate information and communication systems ensuring C2 and SA. The capability, system, and/or service must be able to enter and be managed in the network, and exchange data in a secure manner to enhance mission effectiveness. The capability, system, and/or service must continuously provide survivable, interoperable, secure, and operationally effective information exchanges to enable a net-centric military capability. This capability is achieved through hosting and or integrating Joint and Service C4I systems installed or mounted on the platform. The AMPV will be scalable across the family of vehicles based on individual mission roles' respective mission equipment package needs and support execution of joint information and system exchanges identified in Table 5.1.	The AMPV will enable a net-centric military capability by providing sufficient SWaP capacity to integrate information and communication systems ensuring C2 and SA. The capability, system, and/or service must be able to enter and be managed in the network, and exchange data in a secure manner to enhance mission effectiveness. The capability, system, and/or service must continuously provide survivable, interoperable, secure, and operationally effective information exchanges to enable a net-centric military capability. This capability is achieved through hosting and or integrating Joint and Service C4I systems installed or mounted on the platform. The AMPV will be scalable across the family of vehicles based on individual mission roles' respective mission equipment package needs and support execution of joint information and system exchanges identified in Table 5.1.	(T=O) The AMPV will enable a net-centric military capability by providing sufficient SWaP capacity to integrate information and communication systems ensuring C2 and SA. The capability, system, and/or service must be able to enter and be managed in the network, and exchange data in a secure manner to enhance mission effectiveness. The capability, system, and/or service must continuously provide survivable, interoperable, secure, and operationally effective information exchanges to enable a net-centric military capability. This capability is achieved through hosting and or integrating Joint and Service C4I systems installed or mounted on the platform. The AMPV will be scalable across the family of vehicles based on individual mission roles' respective mission equipment package needs and support execution of joint information and system exchanges identified in Table 5.1.	TBD	AMPV Management estimates that the program will achieve the Threshold requirement.
KPP 3 Force Protection				
The AMPV will provide a	The AMPV will provide a	AMPV will protect the	TBD	AMPV

coordinated suite of preemptive, active, reactive, passive, or a combination thereof, protection capabilities against identified, emerging, and future threats, and will provide for spall reducing floor material or spall blanket.	coordinated suite of preemptive, active, reactive, passive, or a combination thereof, protection capabilities against identified, emerging, and future threats, and will provide for spall reducing floor material or spall blanket.	crew and vehicle occupants (non-supine) from the threats outlined in the classified appendix. The most recent injury criteria thresholds provided by the ARL SLAD determine the protection level from ballistic engagements. At a minimum, the AMPV will provide protection for the crew and occupants from serious or greater injuries due to on-board fires, various blast, shock, overpressure, fragments, and accelerative effects of attack by the threshold threats. The AMPV will minimize spall from overmatching threats.		Management estimates that the program will achieve the Threshold requirement.
KPP 4 Sustainment				
Ao - 93.3%; Am - 83%	Ao - 93.3%; Am - 83%	Ao – The AMPV, at full combat configuration (excluding failures and maintenance of the Government directed GFE/GFM MEP), will achieve an A_o of at least 91.8% when measured continuously over a three day mission (consistent with the General Purpose Mission Profile defined in the AMPV OMS/MP) with only system abort (SA) failures factored into the A_o assessment. Availability of the MEP is not reduced (degraded or lessened) beyond that of its current performance because of integration into the host AMPV chassis. Am – The AMPV at full combat configuration (excluding directed Government Furnished Equipment [GFE/GFM] Mission Equipment Package) will	TBD	AMPV Management estimates that the program will achieve the Threshold requirement.

		achieve an Am of not less than 80% when assessed at the Army fleet level.		
KPP 5 Energy				
30 MPH on primary roads. The AMPV must be able to use alternative energy and/or fuels (future fuel types) and will complete an entire 72-hour mission cycle IAW AMPV OMS/MP without allocated refuels.	30 MPH on primary roads. The AMPV must be able to use alternative energy and/or fuels (future fuel types) and will complete an entire 72-hour mission cycle IAW AMPV OMS/MP without allocated refuels.	The AMPV, at full combat configuration, will consume fuel at a level necessary to complete 225 miles without refueling, when evaluated at sustained speeds of 25 MPH on primary roads.	TBD	AMPV Management estimates that the program will achieve the Threshold requirement.
KPP 6 Mobility				
The AMPV will be capable of traversing the terrains, objects, and obstacles typical in primary roads, cross-country and urban terrain required to maintain mobility thresholds as outlined in the AMPV OMS/MP and successfully fulfill its role in the BCT by maintaining its doctrinal positioning within the formation.	The AMPV will be capable of traversing the terrains, objects, and obstacles typical in primary roads, cross-country and urban terrain required to maintain mobility thresholds as outlined in the AMPV OMS/MP and successfully fulfill its role in the BCT by maintaining its doctrinal positioning within the formation.	(T=O) The AMPV will be capable of traversing the terrains, objects, and obstacles typical in primary roads, cross-country and urban terrain required to maintain mobility thresholds as outlined in the AMPV OMS/MP and successfully fulfill its role in the BCT by maintaining its doctrinal positioning within the formation.	TBD	AMPV Management estimates that the program will achieve the Threshold requirement.

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

Requirements Reference

AMPV CPD dated January 23, 2019

Change Explanations

None

Notes

Data reflects Production APB. The notes below reflect changes from the Development APB.

Adjustments to Threshold values of KPP 1 (Net Ready) and KPP 4 (Sustainment) were approved in the January 2019 CPD to balance program and delivered capabilities.

KPP 7 (Training) and KPP 8 (Lethality) were deleted from the Production APB due to CPD changes. KPP 7 was consolidated with other training requirements under Paragraph 11: DOTMLPF-P Considerations, Section 11.3 Training. KPP 8 was downgraded to Key System Attribute 17 (Lethality [Mortar Carrier only]).

Detailed KPP information is available in the AMPV CPD, including Table 5.1 referenced in the Performance Characteristics above.

Acronyms and Abbreviations

% - Percent
ABCT - Armor Brigade Combat Team
Am - Materiel Availability
Ao - Operational Availability
AR - Army Regulation
ARL - Army Research Laboratory
ATO - Authorization To Operate
BCT - Brigade Combat Team
C2 - Command and Control
C4I - Command, Control, Computers, Communications Intelligence
DAA - Designated Accrediting Authority
DoDAF - Department of Defense Architecture Framework
DOTMLPF-P - Doctrine, Organization, Training, Materiel, Leadership and Education, Personnel, Facilities and Policy
EFP - Explosively Formed Penetrator
FDSC - Failure Definition and Scoring Criteria
FUE - First Unit Equipped
GCV - Ground Combat Vehicle
GESP - GIG Enterprise Service Profile
GFE - Government Furnished Equipment
GFM - Government Furnished Material
GIG - Global Information Grid
GP - General Purpose
GPH - Gallons Per Hour
HBCT - Heavy Brigade Combat Team
HE - High Explosive
IA - Information Assurance
IATO - Interim Authority To Operate
IAW - In Accordance With
ICD - Initial Capability Document
IEA - Information Enterprise Architecture
IED - Improvised Explosive Device
IP - Internet Protocol
IR - InfraRed
IT - Information Technology
JTRS - Joint Tactical Radio System
KSA - Key System Attribute
MC - Mortar Carrier
MEP - Mission Equipment Package
mm - millimeter
MPH - Miles Per Hour
NET - New Equipment Training
OMS/MP - Operational Mode Summary/Mission Profile
RPG - Rocket Propelled Grenade
SA - Situational Awareness; System Abort
SAASM - Selective Availability Anti-Spoofing Module
SLAD - Survivability/Lethality Analysis Directorate
SWaP - Size, Weight, and Power
TV - Technical View

Track to Budget

RDT&E

Appn	BA	PE
Army	2040	05	0605028A

Project	Name
EB5	Armored Multi-Purpose Vehicle (AMPV)

Procurement

Appn	BA	PE
Army	2033	01	0211708A

Line Item	Name
2944G80819	Armored Multi Purpose Vehicle (AMPV)

Acq O&M

Appn	BA	PE
Army	2020	04	0702806A

Subactivity Group	Name	
435	Acquisition & Management Support: Armored Multi-Purpose Vehicle (AMPV)	(Shared)

Cost and Funding

Cost Summary

Total Acquisition Cost							
Appropriation	BY 2019 $M			BY 2019 $M	TY $M		
	SAR Baseline Production Estimate	Current APB Production Objective/Threshold		Current Estimate	SAR Baseline Production Estimate	Current APB Production Objective	Current Estimate
RDT&E	1031.0	1031.0	1134.1	1022.8	1027.5	1027.5	1017.4
Procurement	11579.6	11579.6	12737.6	11381.4	14608.8	14608.8	14207.9
Flyaway	--	--	--	10673.1	--	--	13314.5
Recurring	--	--	--	10669.9	--	--	13310.9
Non Recurring	--	--	--	3.2	--	--	3.6
Support	--	--	--	708.3	--	--	893.4
Other Support	--	--	--	589.0	--	--	756.2
Initial Spares	--	--	--	119.3	--	--	137.2
MILCON	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Acq O&M	151.3	151.3	166.4	130.7	190.4	190.4	165.3
Total	12761.9	12761.9	N/A	12534.9	15826.7	15826.7	15390.6

Current APB Cost Estimate Reference

OSD CAPE ICE dated December 19, 2018

Cost Notes

No cost estimate for the program has been completed in the previous year.

Total Quantity			
Quantity	SAR Baseline Production Estimate	Current APB Production	Current Estimate
RDT&E	39	39	39
Procurement	2897	2897	2897
Total	2936	2936	2936

Quantity Notes

To support the development phase, 39 AMPVs are required: 29 AMPV prototype vehicles for EMD and ten production representative AMPVs for Full-Up System Level live fire tests; the live fire test assets are RDT&E-funded in LRIP.

Cost and Funding

Funding Summary

Appropriation Summary FY 2021 President's Budget / December 2019 SAR (TY$ M)									
Appropriation	Prior	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	To Complete	Total
RDT&E	837.0	83.8	96.6	0.0	0.0	0.0	0.0	0.0	1017.4
Procurement	1191.2	444.8	193.0	682.1	820.4	893.6	860.3	9122.5	14207.9
MILCON	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Acq O&M	5.7	5.5	5.6	5.7	5.8	5.8	5.9	125.3	165.3
PB 2021 Total	2033.9	534.1	295.2	687.8	826.2	899.4	866.2	9247.8	15390.6
PB 2020 Total	2077.9	587.9	719.3	626.7	648.3	743.8	757.2	7630.2	13791.3
Delta	-44.0	-53.8	-424.1	61.1	177.9	155.6	109.0	1617.6	1599.3

Quantity Summary FY 2021 President's Budget / December 2019 SAR (TY$ M)										
Quantity	Undistributed	Prior	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	To Complete	Total
Development	39	0	0	0	0	0	0	0	0	39
Production	0	354	121	32	168	189	195	193	1645	2897
PB 2021 Total	39	354	121	32	168	189	195	193	1645	2936
PB 2020 Total	39	328	131	143	143	143	192	180	1637	2936
Delta	0	26	-10	-111	25	46	3	13	8	0

Cost and Funding

Annual Funding By Appropriation

Annual Funding 2040 | RDT&E | Research, Development, Test, and Evaluation, Army							
Fiscal Year	Quantity	TY $M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
2012	--	--	--	--	--	--	12.3
2013	--	--	--	--	--	--	26.8
2014	--	--	--	--	--	--	27.3
2015	--	--	--	--	--	--	88.8
2016	--	--	--	--	--	--	213.0
2017	--	--	--	--	--	--	177.1
2018	--	--	--	--	--	--	184.2
2019	--	--	--	--	--	--	107.5
2020	--	--	--	--	--	--	83.8
2021	--	--	--	--	--	--	96.6
Subtotal	39	--	--	--	--	--	1017.4

Annual Funding 2040 | RDT&E | Research, Development, Test, and Evaluation, Army							
Fiscal Year	Quantity	BY 2019 $M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
2012	--	--	--	--	--	--	13.5
2013	--	--	--	--	--	--	29.0
2014	--	--	--	--	--	--	28.9
2015	--	--	--	--	--	--	92.6
2016	--	--	--	--	--	--	219.8
2017	--	--	--	--	--	--	179.1
2018	--	--	--	--	--	--	183.2
2019	--	--	--	--	--	--	105.3
2020	--	--	--	--	--	--	80.4
2021	--	--	--	--	--	--	91.0
Subtotal	39	--	--	--	--	--	1022.8

Annual Funding 2033 | Procurement | Procurement of Weapons and Tracked Combat Vehicles, Army							
Fiscal Year	Quantity	TY $M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
2018	156	551.1	2.4	--	553.5	2.9	556.4
2019	198	612.2	12.8	--	625.0	9.8	634.8
2020	121	395.8	28.9	--	424.7	20.1	444.8
2021	32	117.1	47.7	--	164.8	28.2	193.0
2022	168	497.8	127.9	--	625.7	56.4	682.1
2023	189	610.1	144.2	3.6	757.9	62.5	820.4
2024	195	661.4	150.1	--	811.5	82.1	893.6
2025	193	680.7	106.9	--	787.6	72.7	860.3
2026	131	512.9	80.9	--	593.8	63.7	657.5
2027	131	523.6	82.9	--	606.5	32.3	638.8
2028	131	534.5	85.0	--	619.5	32.9	652.4
2029	131	545.6	87.2	--	632.8	33.6	666.4
2030	131	557.0	89.4	--	646.4	34.3	680.7
2031	131	568.2	91.7	--	659.9	35.0	694.9
2032	131	580.1	94.1	--	674.2	35.8	710.0
2033	131	592.2	96.5	--	688.7	36.5	725.2
2034	131	604.6	99.0	--	703.6	37.2	740.8
2035	131	617.3	101.6	--	718.9	38.0	756.9
2036	131	630.2	104.3	--	734.5	38.8	773.3
2037	131	643.4	92.8	--	736.2	39.6	775.8
2038	73	393.2	80.5	--	473.7	40.4	514.1
2039	--	--	57.3	--	57.3	36.6	93.9
2040	--	--	17.8	--	17.8	24.0	41.8
Subtotal	2897	11429.0	1881.9	3.6	13314.5	893.4	14207.9

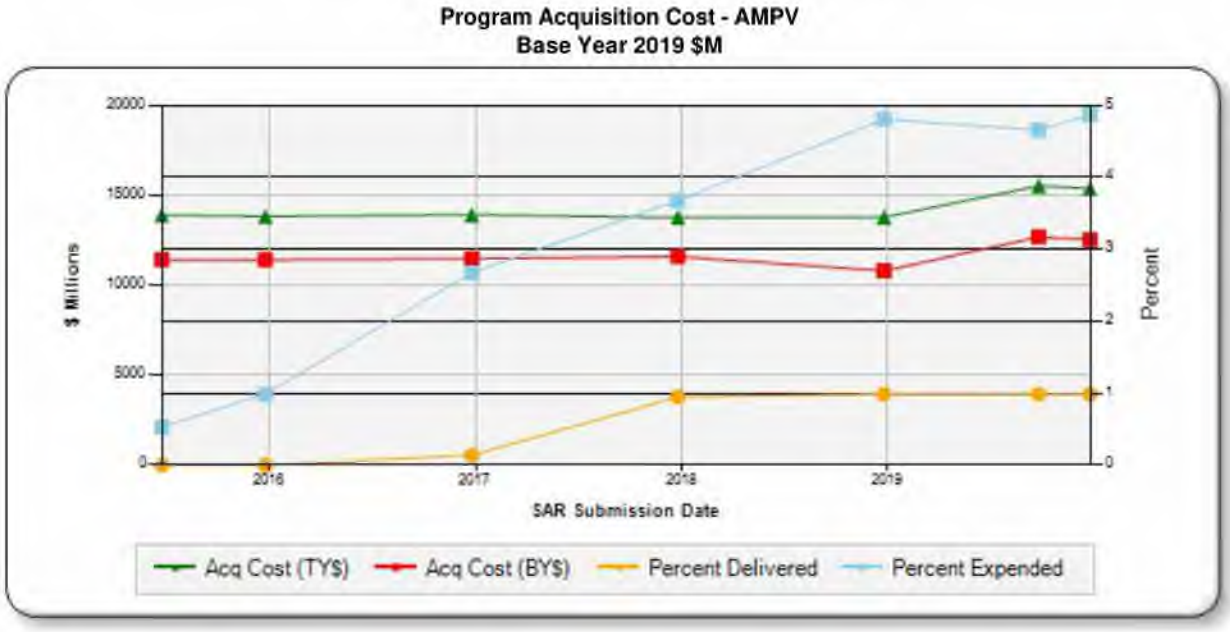
Annual Funding 2033 | Procurement | Procurement of Weapons and Tracked Combat Vehicles, Army							
Fiscal Year	Quantity	BY 2019 $M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
2018	156	540.2	2.4	--	542.6	2.8	545.4
2019	198	588.3	12.4	--	600.7	9.4	610.1
2020	121	372.9	27.2	--	400.1	19.0	419.1
2021	32	108.2	44.0	--	152.2	26.1	178.3
2022	168	450.8	115.9	--	566.7	51.0	617.7
2023	189	541.7	128.0	3.2	672.9	55.5	728.4
2024	195	575.7	130.7	--	706.4	71.4	777.8
2025	193	580.9	91.2	--	672.1	62.1	734.2
2026	131	429.1	67.7	--	496.8	53.3	550.1
2027	131	429.5	68.0	--	497.5	26.5	524.0
2028	131	429.8	68.3	--	498.1	26.5	524.6
2029	131	430.1	68.8	--	498.9	26.5	525.4
2030	131	430.5	69.1	--	499.6	26.5	526.1
2031	131	430.6	69.5	--	500.1	26.5	526.6
2032	131	431.0	69.9	--	500.9	26.6	527.5
2033	131	431.3	70.3	--	501.6	26.6	528.2
2034	131	431.7	70.7	--	502.4	26.6	529.0
2035	131	432.1	71.2	--	503.3	26.6	529.9
2036	131	432.5	71.6	--	504.1	26.6	530.7
2037	131	432.9	62.5	--	495.4	26.6	522.0
2038	73	259.4	53.0	--	312.4	26.7	339.1
2039	--	--	37.0	--	37.0	23.7	60.7
2040	--	--	11.3	--	11.3	15.2	26.5
Subtotal	2897	9189.2	1480.7	3.2	10673.1	708.3	11381.4

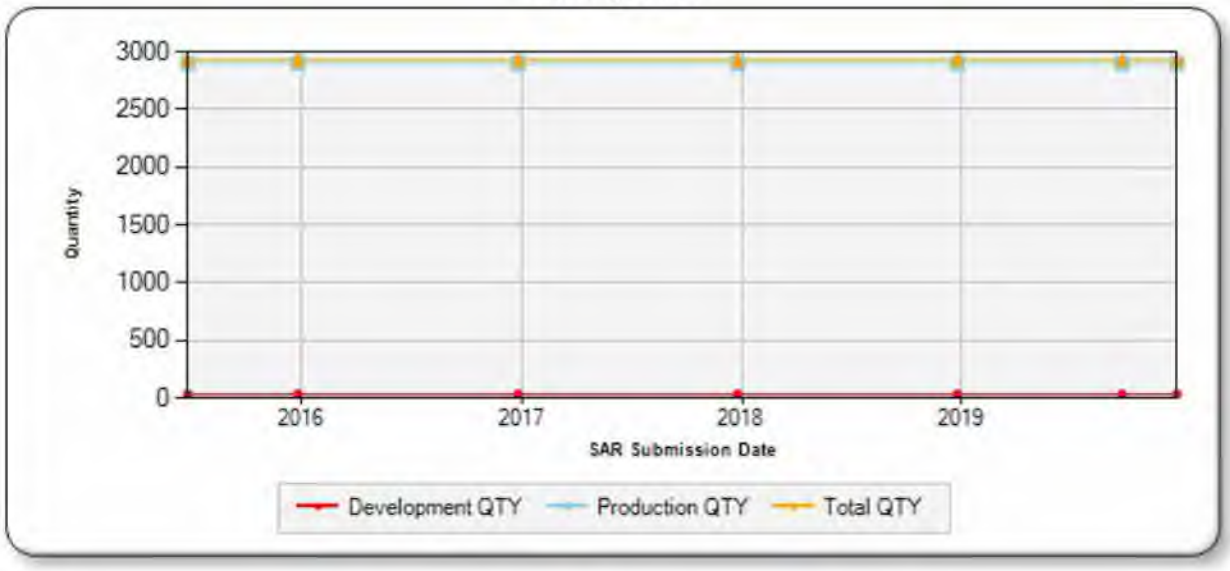
Annual Funding 2020 | Acq O&M | Operation and Maintenance, Army	
Fiscal Year	TY $M Total Program
2019	5.7
2020	5.5
2021	5.6
2022	5.7
2023	5.8
2024	5.8
2025	5.9
2026	8.1
2027	8.2
2028	8.2
2029	8.2
2030	8.3
2031	8.3
2032	8.3
2033	8.4
2034	8.4
2035	8.4
2036	8.5
2037	8.5
2038	8.5
2039	8.5
2040	8.5
Subtotal	165.3

Annual Funding 2020 | Acq O&M | Operation and Maintenance, Army	
Fiscal Year	BY 2019 $M
	Total Program
2019	5.6
2020	5.3
2021	5.3
2022	5.3
2023	5.3
2024	5.2
2025	5.2
2026	6.9
2027	6.9
2028	6.7
2029	6.6
2030	6.6
2031	6.4
2032	6.3
2033	6.3
2034	6.1
2035	6.0
2036	6.0
2037	5.9
2038	5.7
2039	5.6
2040	5.5
Subtotal	130.7

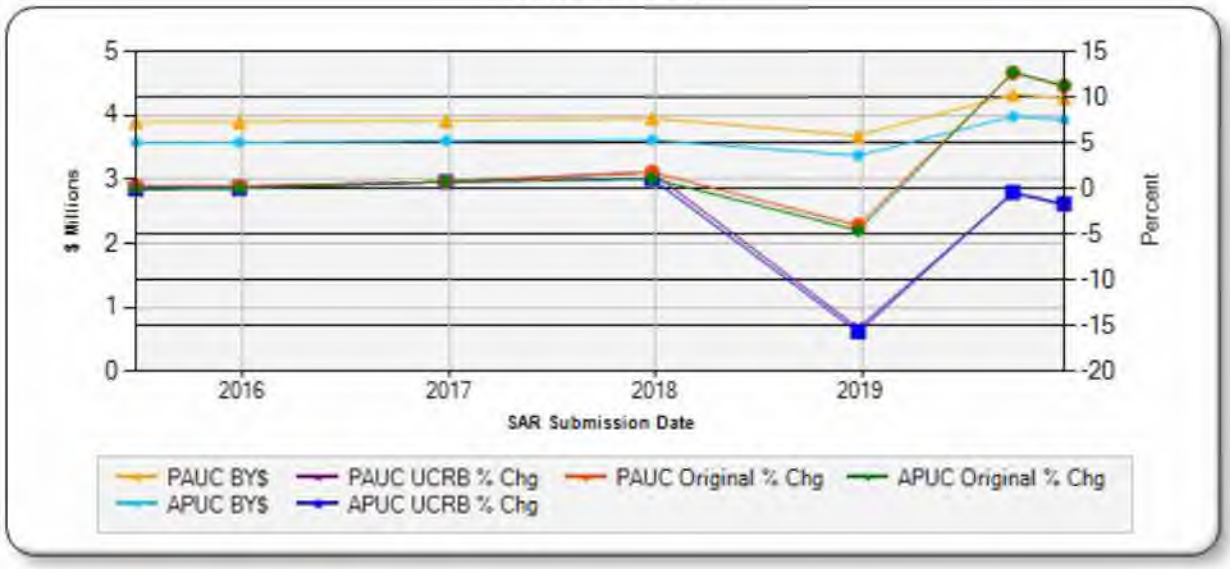
Charts

AMPV first began SAR reporting in June 2015





Unit Cost - AMPV
Base Year 2019 $M



Risks

Significant Schedule and Technical Risks

Significant Schedule and Technical Risks	
Milestone B (October 2014)	
1.	Risk: If there is insufficient electrical growth margins for Size, Weight and Power-Cooling (SWaP-C), then the AMPV will be unable to accommodate future power demand of Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance (C4ISR) equipment and mobility growth. Risk is mitigated by PM engineers performing a high-level power study prior to source selection to ensure that an appropriate solution which meets the 20% growth requirement is available. PM estimated a minimum power growth of 15% is required.
2.	Risk: If adequate powertrain cooling is not provided, then the vehicle will experience automotive performance degradation. Risk is mitigated by using modeling and simulation to evaluate the proposed solutions during source selection. At each phase in the design process the powertrain cooling model will be refined based on test data from components, subsystem and system level evaluation. Simulation will be used to reduce the test-fix-test cycle to ensure adequate cooling performance within the SWaP-C envelope.
3.	Risk: If a contractor is selected for the AMPV that did not previously integrate the M121 Mortar system on their Military Vehicle Derivative additional integration risks may occur. Risk is mitigated by evaluating design maturity during source selection. The contractor will conduct early structural analysis to inform prototype development. Mortar Carrier firing will be conducted during early testing to validate firing tables and structural analysis.
4.	Risk: The Handheld, Manpack and Small Form Fit (HMS) Acquisition Strategy increases competition but may cause additional delays in deliveries for AMPV EMD which increases the likelihood of this risk. Risk mitigated through PM AMPV creating a "Revert to Single Channel Ground and Airborne Radio System (SINCGARS) Strategy" that will change the vehicle design to accept the SINCGARS in place of the new HMS Radio. Any future Engineering Change Proposals to modify the vehicle to accept HMS Radios would be fully funded by PM HMS.
Current Estimate (December 2019)	
1.	Production Delivery: If BAE is unable to delivery vehicles to the revised delivery schedule, then the PdM will be unable to complete testing and activities that could impact planned IOT&E, First Unit Equipped, Full Rate Production decision, and ultimately vehicle fielding.

Risks

Risk and Sensitivity Analysis

Risks and Sensitivity Analysis	
Current Baseline Estimate (March 2019)	
1.	The AMPV ICE generated in support of the Milestone C in December 2018 was used to establish the Production APB. It is difficult to calculate mathematically the precise confidence levels associated with cost estimates prepared for MDAP programs. Based on the rigor in methods used in building the estimate, the strong adherence to the collection and use of historical cost information and the review of applied assumptions CAPE projects that it is about equally likely that the estimate will prove too low or too high for execution of the program. The most significant cost driver in the AMPV cost estimate is the recurring manufacturing cost for vehicles. This recurring manufacturing cost estimate assumes high component design maturity and reflects the usage of Optional Exchange Vehicles (OEV) (i.e., excess Bradley Fighting Vehicles and M113s in inventory). Selected parts are planned to be recovered from these existing exchange vehicles and used on the program, thereby reducing the number of new parts that must be procured during AMPV production. The cost estimate would increase if changes in the planned design result in less mature components or if the assumed quantity of OEVs is not available for harvest of common components. The AMPV Family of Vehicles (FoV) is comprised of five vehicle configurations with unique unit prices. The AMPV APUC and PAUC values reflected in the APB are calculated as the weighted average values based on the planned densities of each of the five vehicle configurations across the Army. Accordingly, the APUC and PAUC are sensitive to the configuration mix within an Armored Brigade Combat Team.
Original Baseline Estimate (May 2015)	
1.	The AMPV ICE generated in support of the Milestone B in December 2014 was used to establish the Development APB. It is difficult to calculate mathematically the precise confidence levels associated with cost estimates prepared for MDAP programs. Based on the rigor in methods used in building the estimate, the strong adherence to the collection and use of historical cost information and the review of applied assumptions CAPE projects that it is about equally likely that the estimate will prove too low or too high for execution of the program. The most significant cost driver in the AMPV cost estimate is the recurring manufacturing cost for vehicles. This recurring manufacturing cost estimate assumes high component design maturity and reflects the usage of Optional Exchange Vehicles (OEV) (i.e., excess Bradley Fighting Vehicles and M113s in inventory). Selected parts are planned to be recovered from these existing exchange vehicles and used on the program, thereby reducing the number of new parts that must be procured during AMPV production. The cost estimate would increase if changes in the planned design result in less mature components or if the assumed quantity of OEVs is not available for harvest of common components. The AMPV Family of Vehicles (FoV) is comprised of five vehicle configurations with unique unit prices. The AMPV APUC and PAUC values reflected in the APB are calculated as the weighted average values based on the planned densities of each of the five vehicle configurations across the Army. Accordingly, the APUC and PAUC are sensitive to the configuration mix within an Armored Brigade Combat Team.
Revised Original Estimate (N/A)	
1.	The Current Baseline Estimate (March 2019) is AMPV's Revised Original Baseline Estimate (December 2019). Please refer to the Current Baseline Estimate for additional information.
Current Procurement Cost (December 2019)	
1.	The Current Procurement Cost is the same as the Current Baseline Estimate. Please refer to the Current Baseline Estimate for additional information.

Low Rate Initial Production

Item	Initial LRIP Decision	Current Total LRIP
Approval Date	12/23/2014	9/26/2017
Approved Quantity	289	551
Reference	Milestone B ADM	Milestone B ADM Amendment
Start Year	2018	2018
End Year	2022	2022

The Current Total LRIP Quantity is more than 10% of the total production quantity due to an amendment to the AMPV Milestone B ADM on September 26, 2017. This amendment increased the LRIP quantity from 289 to 551 vehicles. The increased AMPV LRIP quantity is in support of the European Deterrence Initiative and in response to an U.S. Army Europe (USAREUR) Operational Needs Statement (ONS). In response to the ONS, the Army approved a Directed Requirement for AMPV to replace the M113 family of vehicles in the Armored Brigade Combat Teams aligned with USAREUR. The Directed Requirement requires initial fielding of AMPV by the end of CY 2019, with a maximum of 262 combat platforms acquired and integrated into the European Activity Set and Army Prepositioned Stock-2.

Foreign Military Sales

None

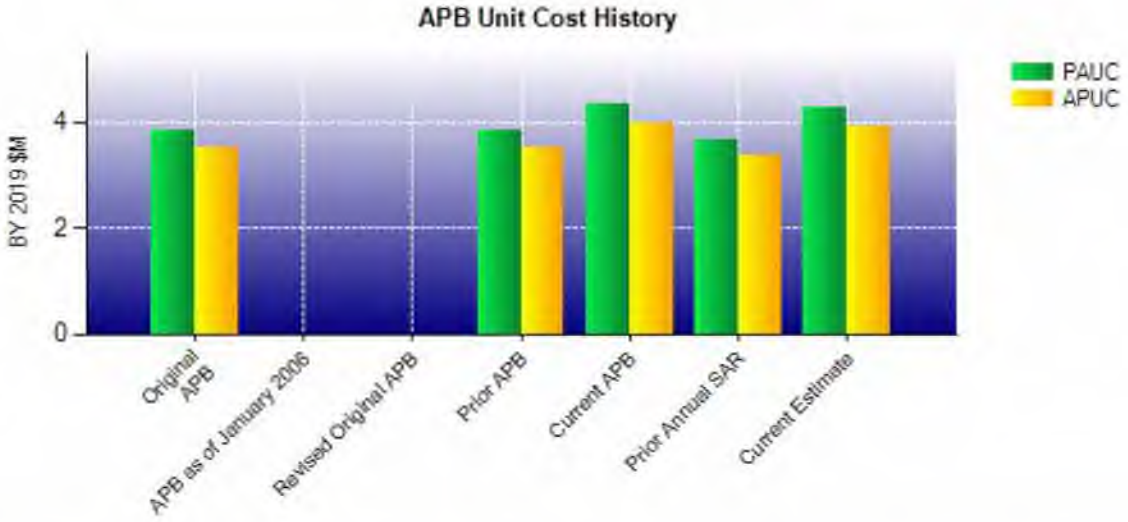
Nuclear Costs

None

Unit Cost

Current UCR Baseline and Current Estimate (Base-Year Dollars)			
Item	BY 2019 $M Current UCR Baseline (Mar 2019 APB)	BY 2019 $M Current Estimate (Dec 2019 SAR)	% Change
Program Acquisition Unit Cost			
Cost	12761.9	12534.9	
Quantity	2936	2936	
Unit Cost	4.347	4.269	-1.79
Average Procurement Unit Cost			
Cost	11579.6	11381.4	
Quantity	2897	2897	
Unit Cost	3.997	3.929	-1.70

Original UCR Baseline and Current Estimate (Base-Year Dollars)			
Item	BY 2019 $M Original UCR Baseline (May 2015 APB)	BY 2019 $M Current Estimate (Dec 2019 SAR)	% Change
Program Acquisition Unit Cost			
Cost	11270.3	12534.9	
Quantity	2936	2936	
Unit Cost	3.839	4.269	+11.20
Average Procurement Unit Cost			
Cost	10231.8	11381.4	
Quantity	2897	2897	
Unit Cost	3.532	3.929	+11.24



APB Unit Cost History					
Item	Date	BY 2019 $M		TY $M	
		PAUC	APUC	PAUC	APUC
Original APB	May 2015	3.839	3.532	4.750	4.443
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	May 2015	3.839	3.532	4.750	4.443
Current APB	Mar 2019	4.347	3.997	5.391	5.043
Prior Annual SAR	Dec 2018	3.683	3.370	4.697	4.368
Current Estimate	Dec 2019	4.269	3.929	5.242	4.904

SAR Unit Cost History

Initial SAR Baseline to Current SAR Baseline (TY $M)									
Initial PAUC Development Estimate	Changes								PAUC Production Estimate
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
4.750	-0.354	0.000	0.060	0.000	0.843	0.000	0.092	0.641	5.391

Current SAR Baseline to Current Estimate (TY $M)									
PAUC Production Estimate	Changes								PAUC Current Estimate
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
5.391	0.002	0.000	-0.021	0.000	-0.113	0.000	-0.017	-0.149	5.242

Initial SAR Baseline to Current SAR Baseline (TY $M)									
Initial APUC Development Estimate	Changes								APUC Production Estimate
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
4.443	-0.324	0.000	0.060	0.000	0.771	0.000	0.093	0.600	5.043

Current SAR Baseline to Current Estimate (TY $M)									
APUC Production Estimate	Changes								APUC Current Estimate
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
5.043	0.000	0.000	-0.022	0.000	-0.100	0.000	-0.017	-0.139	4.904

SAR Baseline History				
Item	SAR Planning Estimate	SAR Development Estimate	SAR Production Estimate	Current Estimate
Milestone A	N/A	N/A	N/A	N/A
Milestone B	N/A	Dec 2014	Dec 2014	Dec 2014
Milestone C	N/A	Feb 2019	Jan 2019	Jan 2019
IOC	N/A	Mar 2022	Mar 2022	Jun 2022
Total Cost (TY $M)	N/A	13944.8	15826.7	15390.6
Total Quantity	N/A	2936	2936	2936
PAUC	N/A	4.750	5.391	5.242

Cost Variance

Summary TY $M					
Item	RDT&E	Procurement	MILCON	Acq O&M	Total
SAR Baseline (Production Estimate)	1027.5	14608.8	--	190.4	15826.7
Previous Changes					
Economic	+1.6	-0.2	--	+3.4	+4.8
Quantity	--	--	--	--	--
Schedule	--	-93.0	--	--	-93.0
Engineering	--	--	--	--	--
Estimating	+1.4	-162.0	--	-29.3	-189.9
Other	--	--	--	--	--
Support	--	-19.4	--	--	-19.4
Subtotal	+3.0	-274.6	--	-25.9	-297.5
Current Changes					
Economic	+0.4	+0.1	--	--	+0.5
Quantity	--	--	--	--	--
Schedule	--	+30.4	--	--	+30.4
Engineering	--	--	--	--	--
Estimating	-13.5	-126.4	--	+0.8	-139.1
Other	--	--	--	--	--
Support	--	-30.4	--	--	-30.4
Subtotal	-13.1	-126.3	--	+0.8	-138.6
Total Changes	-10.1	-400.9	--	-25.1	-436.1
Current Estimate	1017.4	14207.9	--	165.3	15390.6

Summary BY 2019 $M					
Item	RDT&E	Procurement	MILCON	Acq O&M	Total
SAR Baseline (Production Estimate)	1031.0	11579.6	--	151.3	12761.9
Previous Changes					
Economic	--	--	--	--	--
Quantity	--	--	--	--	--
Schedule	--	--	--	--	--
Engineering	--	--	--	--	--
Estimating	+4.7	-45.6	--	-21.4	-62.3
Other	--	--	--	--	--
Support	--	-3.8	--	--	-3.8
Subtotal	+4.7	-49.4	--	-21.4	-66.1
Current Changes					
Economic	--	--	--	--	--
Quantity	--	--	--	--	--
Schedule	--	--	--	--	--
Engineering	--	--	--	--	--
Estimating	-12.9	-119.9	--	+0.8	-132.0
Other	--	--	--	--	--
Support	--	-28.9	--	--	-28.9
Subtotal	-12.9	-148.8	--	+0.8	-160.9
Total Changes	-8.2	-198.2	--	-20.6	-227.0
Current Estimate	1022.8	11381.4	--	130.7	12534.9

Previous Estimate: September 2019

RDT&E	$M	
Current Change Explanations	Base Year	Then Year
Revised escalation indices. (Economic)	N/A	+0.4
Revised estimate to align with the FY 2021 PB. (Estimating)	-12.3	-12.9
Adjustment for current and prior escalation. (Estimating)	-0.6	-0.6
RDT&E Subtotal	-12.9	-13.1

Procurement	$M	
Current Change Explanations	Base Year	Then Year
Revised escalation indices. (Economic)	N/A	+0.1
Schedule variance due to shifting quantities in FY 2018 thru FY 2021 and FY 2038, to align with FY 2021 PB. (Schedule)	0.0	+30.4
Revised estimate to align with the FY 2021 PB. (Estimating)	-119.8	-126.4
Adjustment for current and prior escalation. (Estimating)	-0.1	0.0
Adjustment for current and prior escalation. (Support)	0.0	-0.1
Decrease in other support to align with the POE. (Support)	-26.3	-27.6
Decrease in initial spares to align with the POE. (Support)	-2.6	-2.7
Procurement Subtotal	-148.8	-126.3

Acq O&M	$M	
Current Change Explanations	Base Year	Then Year
Revised estimate to align with the FY 2021 PB. (Estimating)	+0.8	+0.8
Acq O&M Subtotal	+0.8	+0.8

Contracts

Contract Identification

Appropriation: RDT&E
Contract Name: AMPV EMD Base Contract
Contractor: BAE Systems Platforms & Services
Contractor Location: 34201 Van Dyke Avenue
Sterling Heights, MI 48312-4648
Contract Number: W56HZV-15-C-A001
Contract Type: Cost Plus Incentive Fee (CPIF)
Award Date: December 23, 2014
Definitization Date: December 23, 2014

Contract Price							
Initial Contract Price ($M)			Current Contract Price ($M)			Estimated Price At Completion ($M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
383.0	N/A	29	417.6	N/A	29	618.1	582.5

Target Price Change Explanation

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to clarification and update to the contract Scope of Work, specifically tailoring language to articulate the Government's requirement for the contractor to produce designs for the hardware integration for all vehicle mission equipment within the AMPV Family of Vehicles. Additionally, scope was added to incorporate a third workstation into the vehicle, upgrade to Driver's Vision Enhancement-Wide, and to incorporate the Army's latest network configuration into the vehicle.

Contract Variance		
Item	Cost Variance	Schedule Variance
Cumulative Variances To Date (11/22/2019)	-19.9	-5.1
Previous Cumulative Variances	-18.9	-4.5
Net Change	-1.0	-0.6

Cost and Schedule Variance Explanations

The unfavorable net change in the cost variance is due to the efforts to update work instructions and perform prototype refurbishments after test costing more than planned.

The unfavorable net change in the schedule variance is due to late execution of Logistics products to include Field Maintenance and Operator Technical Manual development, validation and comment incorporation and Packaging Data development. Both delays are due to changes to and reduction of installations reviewed during Provisioning Conferences 12 and 13.

Notes

The EMD contractor effort will extend past the current period of performance and will result in further overrun. Both the PM and BAE's Estimates at Complete reflect the extension the period of performance. The need for the extension is due to delays in the Logistics Technical Manual validation/development effort, the Provisioning effort, and incorporation of engineering changes from the Limited User Test and other developmental testing.

Currently, PM AMPV is projecting an Estimated Price at Completion of $582.5M. While the cost overrun is not ideal, the PMO Estimate at Complete is still under the ICE value to which AMPV is funded.

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

Contract Identification

Appropriation: Procurement
Contract Name: AMPV LRIP Options
Contractor: BAE Systems Platforms & Services
Contractor Location: 34201 Van Dyke Ave
Sterling Heights, MI 48312
Contract Number: W56HZV-15-C-A001/2
Contract Type: Fixed Price Incentive (Successive Targets) (FPIS)
Award Date: December 23, 2014
Definitization Date: December 23, 2014

Contract Price							
Initial Contract Price ($M)			Current Contract Price ($M)			Estimated Price At Completion ($M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
872.7	N/A	297	872.7	N/A	297	895.9	925.3

Contract Variance		
Item	Cost Variance	Schedule Variance
Cumulative Variances To Date (11/22/2019)	+4.2	-10.3
Previous Cumulative Variances	--	--
Net Change	+4.2	-10.3

Cost and Schedule Variance Explanations

The favorable cumulative cost variance is due to less Engineering Support in Production being required than planned. This is caused by delays to the start of production assembly and fewer than planned production problem reports.

The unfavorable cumulative schedule variance is due to delays in vehicle production.

Notes

The LRIP options 1 & 2 were executed in January and February 2019. LRIP Option 3 was executed in January 2020. At this time BAE is only reporting against LRIP Options 1 & 2. LRIP Option 3 will be incorporated into the Performance Measurement Baseline in accordance with BAE's EVM System Description. BAE began reporting on LRIP Options 1 & 2 in August 2019 and the initial Integrated Baseline Review was conducted December 2-4, 2019.

Deliveries and Expenditures

Deliveries				
Delivered to Date	Planned to Date	Actual to Date	Total Quantity	Percent Delivered
Development	29	29	39	74.36%
Production	0	0	2897	0.00%
Total Program Quantity Delivered	29	29	2936	0.99%

Expended and Appropriated (TY $M)			
Total Acquisition Cost	15390.6	Years Appropriated	9
Expended to Date	748.9	Percent Years Appropriated	31.03%
Percent Expended	4.87%	Appropriated to Date	2568.0
Total Funding Years	29	Percent Appropriated	16.69%

The above data is current as of February 10, 2020.

Operating and Support Cost

Cost Estimate Details

Date of Estimate:	December 20, 2018
Source of Estimate:	CAPE ICE
Quantity to Sustain:	2897
Unit of Measure:	Vehicle
Service Life per Unit:	26.00 Years
Fiscal Years in Service:	FY 2020 - FY 2067

The 39 RDTE-funded development vehicles will not be sustained.

Sustainment Strategy

The AMPV sustainment concept leverages existing organic structures for maintenance and supply support to maximize commonality and minimize the logistics footprint. By using an existing base platform materiel solution, the common and unique Line Replaceable Units (LRU) will be sustained with the two level maintenance and sustainment repair concepts. Field-level maintenance will maintain, handle, and support the LRUs with the same concept as the existing Armor Brigade Combat Team (ABCT) structure. Sustainment-level maintenance will use common repair programs, facilities and depots wherever economical and feasible. Newly developed maintenance tasks and support will be determined and supported by results from the Logistics Support Analysis, Level of Repair Analysis, Source of Repair Analysis, Business Case Analysis, and/or Management Analysis, as required.

Any new operator and maintainer training requirements will be determined by task analysis and results from the Logistics Demonstration, Limited User Test, and other vehicle tests. AMPV will provide Operator New Equipment Training and Field Maintenance New Equipment Training to each gaining unit. Mission equipment package training will be provided by the corresponding equipment representatives.

PEO Ground Combat Systems performed the analysis required by section 2464, title 10 U.S. Code and determined that AMPV is a core system. PM AMPV is committed to developing the detailed requirements for core depot-level maintenance and repair capabilities as well as the associated sustaining workloads required to support such requirements when the vehicle configuration is solidified. A preliminary estimate of core depot hours, using an existing tracked vehicle as the baseline, was included in the section 2366b, title 10 U.S. Code certification. The LRIP option scope of work contains the development of a National Maintenance Work Requirement which will be in place within four years of IOC.

The O&S estimate assumes that the AMPV will support 20 Active and National Guard ABCTs, across the range of military operations and will train in environments typical in cross-country and urban terrain. It replaces the M113 Family of Vehicles (FoV), which comprise 30% of the ABCT vehicle fleet.

Antecedent Information

The Antecedent system is the M113 FoV. Antecedent estimate is based on data from O&S Management Information System and Army Manpower Cost System.

Annual O&S Costs BY2019 $K		
Cost Element	**AMPV Average Annual Cost Per Vehicle**	**M113 (Antecedent) Vehicle**
Unit-Level Manpower	193.215	165.292
Unit Operations	36.598	41.597
Maintenance	73.844	53.303
Sustaining Support	16.476	20.046
Continuing System Improvements	30.636	4.968
Indirect Support	46.424	66.366
Other	--	--
Total	397.193	351.572

Item	Total O&S Cost $M			
	AMPV			M113 (Antecedent)
	Current Production APB Objective/Threshold		Current Estimate	
Base Year	29917.3	32909.0	29917.3	26481.1
Then Year	49819.7	N/A	49819.7	N/A

Equation to Translate Annual Cost to Total Cost

Total Cost numbers were set to match the new Milestone C APB Objective values.
Total Cost= #of systems x service life per system x average annual cost
$29,917,290.117 = 2897 x 26 x $397.192 (BY 2019 $K)

O&S Cost Variance		
Category	**BY 2019 $M**	**Change Explanations**
Prior SAR Total O&S Estimates - Sep 2019 SAR	29917.3	
Programmatic/Planning Factors	0.0	
Cost Estimating Methodology	0.0	
Cost Data Update	0.0	
Labor Rate	0.0	
Energy Rate	0.0	
Technical Input	0.0	
Other	0.0	
Total Changes	0.0	
Current Estimate	29917.3	

Disposal Estimate Details

Date of Estimate: December 20, 2018
Source of Estimate: CAPE ICE

Disposal/Demilitarization Total Cost (BY 2019 $M): 105.7