AMPHIBIOUS COMBAT VEHICLE FAMILY OF VEHICLES (ACV FOV)

December 2021 Selected Acquisition Report (SAR)

DECEMBER 31, 2021
DEPARTMENT OF THE NAVY

Contents

Common Acronyms and Abbreviations
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(A&S) - Under Secretary of Defense (Acquisition and Sustainment)
USD(AT&L) - Under Secretary of Defense (Acquisition, Technology and Logistics)

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Mission and Description

On January 08, 2019, an Acquisition Decision Memorandum (ADM) was approved to combine the Amphibious Combat Vehicle (ACV) 1.1 Personnel Carrier program and the future ACV 1.2 program into one Major Defense Acquisition Program. The recommendation was based on the demonstrated performance of the ACV 1.1 program meeting key requirements for the ACV 1.2 such as ship-to-shore capability. The Milestone C ADM also directed the continued development of ACV Mission Role Variants (MRVs). Thus, the vehicles reflected in the ACV Family of Vehicles (FoV) program are a personnel carrier variant (ACV-P), a command and control variant (ACV-C), a medium caliber cannon variant (ACV-30), and a maintenance/recovery variant (ACV-R). The ACV-C provides a modernized, armor protected tactical-echelon command post for the regiment or battalion. The ACV-30 mounts a stabilized, medium caliber weapon system capable of supporting dismounted maneuver while still embarking Marines, and the ACV-R provides field maintenance, recovery, and repair capabilities to the assault amphibian (AA) companies and battalion in support of the Marine division.

The ACV serves as the near-term means to modernize Marine Corps AA battalions and provides the Marine Corps' Ground Combat Element (GCE) with expeditionary, protected mobility, and will replace the legacy Assault Amphibian Vehicle (AAV). The ACV is capable of negotiating water obstacles, including use of the sea as maneuver space within the littoral operating area. The ACV provides protected mobility to embarked infantry, and possesses increased lethality to deliver accurate support-by-fire in support of dismounted infantry. The ACV's versatile land mobility allows it to operate effectively as part of the GCE's maneuver task force, as well as conduct mounted security operations in urban or restrictive terrain alongside other wheeled vehicles of the Marine Air Ground Task Force.

Executive Summary

Significant Accomplishments:

Full Up System Level (FUSL) Testing events were successfully completed in August 2020. Initial Operational Test & Evaluation (IOT&E) successfully completed in September 2020. As a result, the Amphibious Combat Vehicle (ACV) has been evaluated as Operationally Effective, Operationally Suitable, and Survivable by Marine Corps Operational Test and Evaluation Activity and Director Operational Test & Evaluation. Although Mean Time Between Operational Mission Failure, a Tier 2 Key System Attribute, was not met during Developmental Testing and IOT&E, reliability was trending in a positive direction and additional Reliability Qualification Testing was added to the program.

The ACV was proven to be significantly more effective than the 40 year old Assault Amphibious Vehicle (AAV) and received approval for FRP Milestone Decision on December 8, 2020. The FRP option for FY 2021 was broken into two lots of 36 vehicles each due to the Continuing Resolution. FRP Lot 1a option was exercised on December 10, 2020 for 36 vehicles and Lot 1b was exercised on February 10, 2021 for 36 vehicles.

Production has continued on the ACV-Ps. All 116 vehicles for LRIP Lots 1, 2, and 3 were delivered including 4 FUSL vehicles. FRP Lot 1 vehicles have started production. All three ACV-C production representative test vehicles and the ACV-30 risk reduction vehicle have also been delivered and are in testing. As of April 2022, there were 34 vehicles in progress on the line.

Early Deployment to Company (Co) D, 3rd Assault Amphibian Battalion began in September 2020 and control of all 18 vehicles for IOC was transferred to Co D in early November 2020. Sufficient spares were in place and additional spares were included for each Lot of procurement to bridge the gap to full provisioning. IOC was declared on November 13, 2020. 86 vehicles have been fielded to 3d Assault Amphibian Battalion (AABn) and 18 vehicles have been fielded to Assault Amphibian School (AAS) for a total of 104 fielded vehicles. Fielding of the final 4 vehicles to 3d AABn is projected to occur at the end of April 2022.

ACV-C Developmental Testing completed at both Aberdeen Test Center (ATC) and the Amphibious Vehicle Test Branch (AVTB). The ACV-C Logistics Demonstration completed at AVTB in November 2021 and Follow-on Operational Test and Evaluation completed in February 2022. There were no unexpected test results and Director Operational Test and Evaluation Operational Testing and Live Fire Reports were finalized in March 2022. The Component Live Fire Report is expected to be finalized at the end of April 2022.

Safety Of Use Message (SOUM) restricting water operations to protected waters only has been superseded by a new SOUM that allows unrestricted water operations once units receive new tow ropes and complete necessary training. Testing has verified that the new, more elastic tow rope eliminates issues experienced in the field with the Sea Tow Quick Release. Marines who did not receive an unrestricted license as a result of the SOUM received amphibious proficiency training in February 2022.

Training has been established through the New Equipment Training Team (NETT). The New Equipment Training (NET) curriculum has been demonstrated as effective through the conduct of 8 Operator courses, 4 Maintainer courses, and 2 ACV-C courses. The first course of AAS Operator NET occurred April 26 through May 30, 2021. Water operations for this class occurred May 19-20, 2021. Operator NET and Field Level Maintenance for the fourth fielded unit began in January 2022. Additional training courses are planned throughout FY 2022 and FY 2023 for future units and additional AAS Marines.

Design work continues on the ACV Family of Vehicles. The ACV-C conducted a successful Critical Design Review (CDR) June 05, 2019, and production representative test vehicles based on the CDR design, were tested with Follow-on Operational Test & Evaluation completing in February 2022. Following

a successful Preliminary Design Review on May 05, 2021, the ACV-30 entered Phase 3 to conduct contractor risk reduction testing with the ACV-30 risk reduction vehicle. This phase will complete the detailed ACV-30 design and conclude in a CDR 3Q FY 2022.

Phase 1 of ACV-P Follow-on Reliability Testing (FRT) completed in October 2021 at AVTB. FRT Phase 2 is scheduled to begin 3Q FY 2022 at ATC. These vehicles incorporate corrective actions already implemented in production.

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 2014	Materiel Development Decision milestone achieved with the ADM) authorizing entry into the acquisition process at Milestone B.
March 2015	Development Request For Proposal (RFP) Release Decision Point achieved with the ADM
November 2015	Milestone B was achieved with the ADM authorizing entry into the EMD phase.
November 2015	Two competitive EMD contracts were awarded to BAE Systems Land & Armaments and Science Applications International Corporation. Each contract was comprised of Fixed Price Incentive Firm Target, Firm Fixed Priced, and Cost Plus Fixed Fee CLINs).
December 2015	General Dynamics filed a protest with the Government Accountability Office (GAO) resulting in Stop Work Orders being issued to both BAE Systems Land & Armaments and Science Application International Corporation which delayed the approval of the Milestone B.
March 2016	The GAO dismissed the protest and the Stop Work Orders were lifted allowing production to continue on the vehicle builds.
March 2017	Developmental Testing began.
October 2017	EMD vehicle deliveries from both competitors complete.
November 2017	Production Readiness Review was held.
December 2017	Marine Corps Requirements Oversight Council approved the CPD for ACV 1.1
June 2018	Milestone C approval was granted. LRIP Lot 1 was awarded.
July 2018	Summit focus group was held at Camp Pendleton, CA. Output was a prioritized list of changes the government would like to be incorporated in the design.
August 2018	Technical Interchange Meeting was held where BAE Systems presented design and implementation plans to correct issues identified during Operational Assessment. The approved ECPs will improve the crew's overall situational awareness.
October 2018	ACV High Surf Test concluded and requirement was met.
December 2018	LRIP Lot 2 was awarded for 30 vehicles.

History of Significant Developments Since Program Initiation	
Date	**Significant Development Description**
January 2019	ADM combining ACV 1.1 and ACV 1.2 into ACV Family of Vehicles (with additional variants).
July 2019	ADM approved LRIP Lot 3 to address production gap before full rate production.
October 2019	LRIP Lot 3a was awarded for 30 vehicles with Continuing Resolution funds.
December 2019	ACV Logistics Demonstration was completed on December 20, 2019.
February 2020	LRIP Lot 3b was awarded for 26 vehicles.
September 2020	Initial Operational Test and Evaluation successfully completed.
November 2020	Initial Operational Capability declared on November 13, 2020.
December 2020	Full Rate Production (FRP) Decision approved on December 08, 2020.
December 2020	FRP Lot 1a was awarded for 36 vehicles with Continuing Resolution funds.
February 2021	FRP Lot 1b was awarded for 36 vehicles.
December 2021	FRP Lot 2a was awarded for 33 vehicles with Continuing Resolution funds.

Schedule

Schedule Events

Schedule Events					
Events	**Production APB (28 Sep 2018) Objective**	**Current APB Production Objective/Threshold**		**Current Estimate/Actual**	**Deviation**
Milestone B	Nov 2015	Nov 2015	Nov 2015	11/19/2015	
Preliminary Design Review	Jul 2016	Jul 2016	Jul 2016	06/23/2016	
Critical Design Review	Jul 2016	Jul 2016	Jul 2016	06/23/2016	
Milestone C	Jun 2018	Jun 2018	Jun 2018	06/19/2018	
Initial Operational Test & Evaluation	Apr 2020	Sep 2020	Sep 2020	09/05/2020	
Full Rate Production Decision	Jun 2020	Jun 2020	Dec 2020	12/08/2020	
Initial Operational Capability	Aug 2020	Aug 2020	Feb 2021	11/13/2020	

Significant Schedule Risks

Significant Schedule Risks	
Current Estimate (December 2021)	
1.	Schedule Risk: If BAE Systems cannot increase their production capacity from 5 vehicles per month at the FRP decision to 9 vehicles per month in FY 2025 due to facilities and personnel deficiencies, then vehicle delivery delays will impact the fielding plan. Mitigation: 1. Review BAE Systems' proposed delivery schedule. (Completed) 2. Program Office on-site monitoring at York. (On-going) 3. Assembly line has been designed to expand from 4 (EMD) to 8 (LRIP) stations. (Completed) 4. BAE Systems implements proposed capital investments to achieve FRP capability. (On-going) 5. BAE Systems completes additional staffing process to support increase level of production. (On-going)

Performance

Performance Characteristics					
Production APB (MS C) Objective	**Current APB (FRP) Objective/Threshold**		**Demonstrated Performance (include Date of Demonstration)**	**Current Estimate/ Actual**	**Deviation**
Net Ready (NR)					
The Amphibious Combat Vehicle (ACV) shall enable a Net-Centric military capability through the integration of Command, Control, Communications, Computer and Intelligence (C4I) devices which are secure, interoperable and operationally effective. The ACV shall support the execution of joint information/system exchanges using C4I devices listed in the Platform Integration Information Table (PIIT).	N/A	N/A	N/A. KPP demoted to Tier 2 Key System Attribute (KSA).		(Ch-1)
Sustainment Materiel Availability					
The ACV shall have a Materiel Availability of 90% defined as "operational end items/total population".	The ACV should have a Materiel Availability of 90% defined as "operational end items/total Population".	The ACV shall have a Materiel Availability of 75% defined as "operational end items/total population".	93% - 07/23/2020	The ACV should have a Materiel Availability of 90% defined as "operational end items/total population".	
Sustainment Operational Availability					
ACV shall have an Operational Availability of 90%.	ACV should have an Operational Availability of 90%.	ACV shall have an Operational Availability of 81%.	91% - Director, Operational Test & Evaluation - 07/23/2020	ACV should have an Operational Availability of 90%.	
Energy					
An ACV shall achieve at least 1.6 mpg across the land portion of the mission profile. ACV shall consume less than 0.80 gph while stationary and providing 5.6 kW to power battle-command systems, weapon systems, and other key onboard systems.	An ACV should achieve at least 1.6 mpg across the land portion of the mission	An ACV shall achieve at least 1.28 mpg across the land portion of the mission	Demonstrated 1.6 mpg (mission profile); 1.54 gph (idle) - 12/21/2017	An ACV should achieve at least 1.6 mpg across the land portion of the mission profile. ACV should consume less than 0.80 gph while stationary and	

	profile. ACV should consume less than 0.80 gph while stationary and providing 5.6 kW to power battle-command systems, weapon systems, and other key onboard systems.	profile. ACV shall consume less than 1.9 gph while stationary and providing 5.6 kW to power battle-command systems, weapon systems, and other key onboard systems.		providing 5.6 kW to power battle-command systems, weapon systems, and other key onboard systems.	
Sea Connectors					
The ACV at Gross Vehicle Weight (GVW), without preparation, shall be transportable via Sea Connectors to the beach, through the surf zone. Two ACVs shall be transportable on the Landing Craft Air Cushioned (LCAC) 100 at GVW.	The ACV at GVW, without preparation, shall be transportable via Sea Connectors to the beach, through the surf zone. Two ACVs shall be transportable on the LCAC 100 at GVW.	(T=O) The ACV at GVW, without preparation, shall be transportable via Sea Connectors to the beach, through the surf zone. Two ACVs shall be transportable on the LCAC 100 at GVW.	Accommodated 2 ACV-Ps with LCAC operational limitation for weight – 04/30/2020	The ACV at GVW, without preparation, shall be transportable via Sea Connectors to the beach, through the surf zone. Two ACVs shall be transportable on the LCAC 100 at GVW.	
System Survivability: Egress Kill Zone/Protected Fuel					
Given ballistic penetration damage to the fuel system external to the engine compartment, the ACV shall be capable of maneuvering for 25 miles on level primary roads without manual manipulation of any fuel system components or repair.	Given ballistic penetration damage to the fuel system external to the engine compartment, the ACV should be capable of	Given ballistic penetration damage to the fuel system external to the engine compartment, the ACV shall be capable of	Demonstrated 86.3 miles – 02/27/2020	Given ballistic penetration damage to the fuel system external to the engine compartment, the ACV should be capable of maneuvering for 25 miles on level primary roads without manual	

	maneuvering for 25 miles on level primary roads without manual manipulation of any fuel system components or repair.	maneuvering for 5 miles on level primary roads without manual manipulation of any fuel system components or repair.		manipulation of any fuel system components or repair.	
Water Mobility					
ACV up to GVW shall be capable of ship-to-shore maneuver from distances of 12 NM in water conditions up through 3 ft. Significant Wave Height (SWH) to land an infantry company ashore.	ACV up to GVW shall be capable of ship-to-shore maneuver from distances of 12 NM in water conditions up through 3 ft. SWH to land an infantry company ashore.	(T=O) ACV up to GVW shall be capable of ship-to - shore maneuver from distances of 12 NM in water conditions up through 3 ft. SWH to land an infantry company ashore.	Demonstrated 12 NM ship-to-shore in required conditions – 01/31/2020	ACV up to GVW shall be capable of ship-to-shore maneuver from distances of 12 NM in water conditions up through 3 ft. SWH to land an infantry company ashore.	
Cyber Survivability					
The ACV will prevent, mitigate, and recover from cyber-attacks. The ACV shall prevent unauthorized external physical access to ports which connect to automotive Controller Area Network (CAN) bus(ses) and J1939 network(s). The ACV shall allow only authorized users to update firmware and software on the system. The ACV shall not possess wireless capability beyond the C4I- related Government Furnished Equipment (GFE) systems. The ACV should counter attempted malicious data injection, other corruption, and denial of service activities.	The ACV will prevent, mitigate, and recover from cyber-attacks. The ACV shall prevent unauthorized external physical access to ports which connect to automotive Controller Area	The ACV will prevent, mitigate, and recover from cyber-attacks. The ACV shall prevent unauthorized external physical access to ports which connect to automotive CAN	All cyber security requirements were successfully tested and evaluated in a Cooperative Vulnerability Identification (CVI)/Adversarial Cybersecurity Developmental Test (ACDT) and Cooperative Vulnerability Penetration Assessment conducted as part of the ACV cyber security test program. Details are provided in classified reports – 08/16/2020.	The ACV will prevent, mitigate, and recover from cyber-attacks. The ACV shall prevent unauthorized external physical access to ports which connect to automotive Controller Area Network (CAN) bus (ses) and J1939 network(s). The ACV shall allow only authorized users to update firmware and software on the system. The ACV	

	Network (CAN) bus(ses) and J1939 network(s). The ACV shall allow only authorized users to update firmware and software on the system. The ACV shall not possess wireless capability beyond the C4I related GFE systems. The ACV should counter attempted malicious data injection, other corruption, and denial of service activities. The ACV-C will possess additional cyber related attributes.	bus(ses) and J1939 network(s). The ACV shall allow only authorized users to update firmware and software on the system. The ACV shall not possess wireless capability beyond the C4I-related GFE systems. The ACV-C will possess additional cyber related attributes.		shall not possess wireless capability beyond the C4I related GFE systems. The ACV should counter attempted malicious data injection, other corruption, and denial of service activities. The ACV-C will possess additional cyber related attributes.	
Pay Load					
ACV shall carry a crew (3) and infantry (13) with full combat loads (which includes 1st Day of Supply (DoS)), additional 2nd and 3rd DoS and Combat Essential Equipment (CEE) .	ACV-P shall carry a crew (3) and 13 embarked Marines with full combat loads (which includes 1st Day of Supply	ACV-P shall carry a crew (3) and 13 embarked Marines with full combat loads (which includes 1st DoS), additional	Accommodated crew of 3 and 13 Infantry with required loads – 02/28/2020.	ACV-P shall carry a crew (3) and 13 embarked Marines with full Combat loads (which includes 1st Day of Supply (DoS)), additional 2nd and 3rd DoS and CEE totaling 8,500 lbs.	

	(DoS)), additional 2nd and 3rd DoS and CEE totaling 8,500 lbs.	2nd DoS and CEE totaling 7,600 lbs.			
Training					
The ACV and ACV training systems shall be designed such that the time to train a single ACV operator or ACV maintainer is 20% less than the Assault Amphibian Vehicle (AAV) equivalent course.	N/A	N/A	N/A. KPP demoted to a Tier 3 Additional Performance Attribute.		(Ch-2)

Requirements Source:
ACV FoV Capability Development Document Version 2.0 (Marine Corps Requirements Oversight Council Approved) dated July 16, 2019.

Deviation Explanations:
(Ch-1) The Key Performance Parameter (KPP) was demoted to a Key System Attribute in the latest Requirements Reference for ACV FoV.
(Ch-2) The KPP was demoted to an Additional Performance Attribute in the latest Requirements Reference for ACV FoV.

Acquisition Budget Estimate

Total Acquisition Cost

Category	Base Year	PRODUCTION (MS C) APB 9/28/2018 Objective (BY14$M)	FRP / CCP APB (Current) 11/24/2020 Objective (BY14$M)	FRP / CCP APB (Current) 11/24/2020 Threshold (BY14$M)	Budget Estimate PB 2023 BY14$M	Budget Estimate PB 2023 TY$M	Deviation
RDT&E	2014	769.3	1,095.3	1,204.8	1,143.4	1,271.9	0
Procurement	2014	1035.9	3,663.8	4,030.2	3,749.2	4,659.6	0
MILCON	2014	21.4	64.5	71.0	18.5	22.0	0
Acq. O&M	2014	9.1	14.4	15.8	19.7	23.6	3.9
Total	2014	1,835.7	4,838.0	5,321.8	4,930.8	5,977.1	
PAUC	2014	7.649	7.136	7.850	7.283	8.829	0
APUC	2014	5.078	5.797	6.337	5.932	7.373	0

Total End Item Quantity

Quantity Category	Current APB Quantity	Current Estimate Quantity
Development	46	46
Procurement	632	632

Budget Notes:
The current APB dated November 24, 2020 is based on the Component Cost Position approved by ASN (RD&A) during the FRP decision on November 20, 2020.

Quantity Notes:
RDT&E quantity: Program plans to procure one less Production Representative Test Vehicle (PRTV) for ACV-R than originally planned in FY 2023; program will procure three PRTVs instead of four.
PMC quantity: The program plans to only procure 31 ACV-Cs as new and will refurbish two ACV-C PRTVs and field them in FY 2023. The total number of fielded ACV-Cs remains 33 vehicles, and the AAO remains unchanged at 632 vehicles.

APB Unit Cost Deviations Explanations:
Deviations from Current APB: The program cost is performing to the APB; there are no deviations from the APB. The acquisition phase for the program ends in FY 2026, however the program has been resourced beyond FY 2026 in the current Program Element (PE). Program resources beyond FY 2026 are earmarked for the planned ACV Modifications Line and signify the start of the operations and support phase for the program; as such, these resources should not be counted against the program APB. Program resources in FY 2027 include $45.463M of RDT&E, $121.269M of PMC, and $7.68M of Acquisition O&M which are planned for the ACV Modifications Line. These resources will be moved to a separate PE to properly align with the program APB.

Changes from Original APB: The Original APB was established for ACV increment 1.1, consisting solely of 204 Personnel variants (ACV-P) with 36 test vehicles. In an ADM dated January 8, 2019, the Milestone Decision Authority (ASN(RD&A)) combined the ACV 1.1 and 1.2 programs into a single ACV Family of Vehicles (FOV) that continues the established phased development approach, which includes procuring an additional 186 ACV-P variants, plus the design, development, and production of Mission Role Variants (MRVs), including 33 Command variants (ACV-C), 175 Improved Lethality variants (ACV-30s), and 34 Recovery variants (ACV-Rs), plus up to 10 additional test vehicles.

Risk and Sensitivity Analysis

Risks and Sensitivity Analysis	
Current Procurement Cost (December 2021)	
1.	The current procurement cost estimate is the Component Cost Position that was approved for Full Rate Production in November 2020 and is the current APB. The estimate is approximately the 50th percentile cost estimate, i.e. it is equally likely that the estimate will prove too high or too low. The ACV FoV CCP was developed within an industry cost estimating tool (ACEIT) that incorporates cost risk and uncertainty. The cost uncertainty distribution graph (aka S-curve) and it's coefficient of variation indicated that the cost model has little sensitivity to individual and correlated cost changes.
Original Baseline Estimate (May 2015)	
1.	The original baseline is the Milestone B estimate (November 2015). Based on OSD Cape Independent Cost Estimate dated November 17, 2015.
Revised Original Estimate (N/A)	
None	
Admin Baseline Estimate (December 2021)	
1.	The current procurement cost risk is the same as the current baseline estimate risk.

Unit Cost

Current Baseline Compared with Current Estimate

Category ($M)	Current APB	Current Estimate	% Change	NMC Breach
PAUC				
Cost	4,838.0 (BY14$M)	4,930.8 (BY14$M)	1.9%	-
Quantity	678	677	-0.1%	-
Unit Cost	7.136	7.283	2.1%	
APUC				
Cost	3,663.8 (BY14$M)	3,749.2 (BY14$M)	2.3%	-
Quantity	632	632	0.0%	-
Unit Cost	5.797	5.932	2.3%	

* There is no deviation or % change. The program cost is performing to the APB.

Original Baseline Compared with Current Estimate

Category ($M)	Original APB	Current Estimate	% Change	NMC Breach
PAUC				
Cost	1,826.9 (BY14$M)	4,930.8 (BY14$M)	169.9%	-
Quantity	240	677	182.1%	-
Unit Cost	7.612	7.283	-4.3%	
APUC				
Cost	1,015.5 (BY14$M)	3,749.2 (BY14$M)	269.2%	-
Quantity	204	632	209.8%	-
Unit Cost	4.978	5.932	19.2%	

Unit Cost Notes:
**Greatly increasing quantity (204 original baseline to 632 current APB) to incorporate Mission Role Variants into the Family of Vehicles resulted in a new APB for the Full Rate Production decision.

Actions Taken or Proposed to Control Future Cost Growth:
A forward production rate agreement (FPRA) is in place to fix labor costs.
A foreign exchange rate agreement is in place to limit impacts to program costs from changes in the value of the euro.

Contracts

Contract Data ($TYM)		
Contract Number	M67854-16-C-0007	
Effort Number		
Modification Number	P00059	
Award Date	November 24, 2015	
Definitization Date	October 14, 2021	
Order Number		
CAGE Code/CAGE Legal Name	6XWA8/Science Applications International Corporation (SAIC)	
Contract Title	ACV 1.1	
Contract Address	1710 SAIC Drive McLean, VA 22102	
Contracts/Effort Price, Quantity, and Performance ($M)		
Initial Target Price	Current Target Price	
218.14	218.14	
Initial Ceiling Price	Current Ceiling Price	
228.92	228.92	
Contract's EAC	PM's EAC	
Initial Quantity	Current Quantity	Delivered Quantity
16	16	16
BAC	BCWP	ACWP
BCWS	Cost Variance	Schedule Variance

SAIC Contract Notes:
The Program Office received a waiver of EVM on March 19, 2015 prior to Milestone B based on the limited duration of work to be performed in which EVM would apply. The cost of certifying an EVM System at multiple sites versus the benefit achieved due to the low level of residual risk after the application of alternative management controls was not beneficial nor did it produce actionable results. However, the Program Office receives monthly Integrated Program Management Reports including Schedule Risk Assessments, Cost Schedule Data Reports, and Contract Funding Status Reports from the prime contractor in order to track and manage cost, schedule and performance.

Cost Variance:
Cost Variance reporting is not required on this (Fixed Price Incentive Fee (FPIF)/Firm Fixed Price (FFP)/Cost Plus Fixed Fee (CPFF) contract).

Schedule Variance:
Schedule Variance reporting is not required on this (FPIF/FFP/CPFF) contract.

Contract Data ($TYM)		
Contract Number	M67854-16-C-0006	
Effort Number		
Modification Number	P00141	
Award Date	November 24, 2015	
Definitization Date	January 25, 2022	
Order Number		
CAGE Code/CAGE Legal Name	7B726/BAE Systems Land & Armaments LP	
Contract Title	ACV Family of Vehicles	
Contract Address	34201 Van Dyke Avenue Sterling Heights, MI 78312	
Contracts/Effort Price, Quantity, and Performance ($M)		
Initial Target Price	Current Target Price	
1525.25	1525.25	
Initial Ceiling Price	Current Ceiling Price	
1538.67	1538.67	
Contract's EAC	PM's EAC	
3189.9	3189.9	
Initial Quantity	Current Quantity	Delivered Quantity
16	240	124
BAC	BCWP	ACWP
BCWS	Cost Variance	Schedule Variance

BAE Contract Notes:
The Program Office received a waiver of EVM on March 19, 2015 prior to Milestone B based on the limited duration of work to be performed in which EVM would apply. The cost of certifying an EVM System at multiple sites versus the benefit achieved due to the low level of residual risk after the application of alternative management controls was not beneficial nor did it produce actionable results. However, the Program Office receives monthly Integrated Program Management Reports including Schedule Risk Assessments, Cost Schedule Data Reports, and Contract Funding Status Reports from the prime contractor in order to track and manage cost, schedule and performance.

The ACV 1.1 was competitively down-selected to BAE Systems, and the Contract Option for LRIP Lot 1 was awarded in June 2018. In addition, the following vehicle options were exercised: LRIP Lot 1 in June 2018; LRIP Lot 2 in December 2018; LRIP Lot 3A in October 2019; LRIP Lot 3B in February 2020; FRP Lot 1A in November 2020; FRP Lot 1B in February 2021; and FRP Lot 2A in December 2021.

Cost Variance:
Cost Variance reporting is not required on this (FPIF/FFP/CPFF) contract.

Schedule Variance:
Schedule Variance reporting is not required on this (FPIF/FFP/CPFF) contract.

Technologies and Systems Engineering

Significant Technical Risks

Significant Technical Risks	
Current Estimate (December 2021)	
1.	Performance - If LOGCOM is unable to procure repair parts, particularly parts with long lead times, then unit equipment readiness will be negatively impacted resulting in longer repair cycles. Mitigation: 1. Stand-up of PdM ACV and LOGCOM ACV Sustainment IPT to define needed Initial Issue Provisioning (IIP) repair parts by type, quantity, location and delivery times. (Completed) 2. PM AAA to award a contract with BAE Systems so LOGCOM can purchase ACV repair parts. (Completed) 3. BAE Systems to identify parts with long lead times for government to assign NSNs. (On-going)

Deliveries and Expenditures

Deliveries				
Delivered to Date	**Planned to Date**	**Actual to Date**	**Total Quantity**	**Percent Delivered**
Development	0	39	45	86.67%
Production	0	112	632	17.72%
Total Program Quantity Delivered	0	151	677	22.3%

Expended and Appropriated (TY $M)

Total Acquisition Cost:	5,977.2
Expended to Date:	1,456.7
Percent Expended:	24.4%
Total Funding Years:	FY 2012 to FY 2027
Years Appropriated:	FY 2012 to FY 2022
Percent Years Appropriated:	68.8%
Appropriated to Date:	$2,639.9
Percent Appropriated:	44.1%

The above data is current as of April 18, 2022.

Low Rate Initial Production

Item	Initial LRIP Decision	Current Total LRIP
Approval Date	11/19/2015	6/19/2018
Approved Quantity	56	116
Reference	Milestone B ADM	ADM dated July 12, 2019
Start Year	2018	2018
End Year	2020	2020

Rationale if Current Total LRIP Quantity exceeds 10% of the total Procurement quantities:
The Current Total LRIP Quantity is more than 10% of the total production quantity in order to remove the gap in production leading into Full Rate Production. The gap would negatively impact BAE's skilled labor force and the planned ramp up for Full Rate Production. It was noted that this additional quantity exceeded 10% of the ACV Family of Vehicles Program Authorized Acquisition Objective (632 vehicles).

Operating and Support Costs

Total Program O&S Cost Compared with Baseline

	Current APB Objective (BY 2014$M)	Current APB Threshold (BY 2014$M)	Current Estimate (BY 2014$M)	Current Estimate (TY$M)	Deviation
Total O&S ($Millions)	8,011.4	8,808.5	8,011.4	12,255.3	0%

O&S Cost Breakdown

This is the total O&S phase costs for FY 2014-FY 2049.

Category (BY14$M)	ACV FoV
Unit-Level Manpower	0.222
Unit Operations	0.041
Maintenance	0.162
Sustaining Support	0.211
Continued System Improvements	0.037
Other	0.019
Total O&S	0.692