Modernized Selected Acquisition Report (MSAR)
Amphibious Combat Vehicle Family of Vehicles (ACV FoV)

FY 2025 President's Budget

Effective: December 31, 2023

Defense Acquisition Visibility Environment

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(U) Common DoD Abbreviations

$B	Billions of Dollars
$K	Thousands of Dollars
$M	Millions of Dollars
ACAT	Acquisition Category
Acq O&M	Acquisition-Related Operations and Maintenance
ADM	Acquisition Decision Memorandum
APA	Additional Performance Attribute
APB	Acquisition Program Baseline
APPN	Appropriation
APUC	Average Procurement Unit Cost
BA	Budget Authority or Budget Activity
Blk	Block
BY	Base Year
CAE	Component Acquisition Executive
CAPE	Cost Assessment and Program Evaluation
CARD	Cost Analysis Requirements Description
CCE	Component Cost Estimate
CCP	Component Cost Position
CDD	Capability Development Document
CLIN	Contract Line Item Number
CPD	Capability Production Document
CY	Calendar Year or Constant Year
DAB	Defense Acquisition Board
DAE	Defense Acquisition Executive
DAES	Defense Acquisition Executive Summary
DAVE	Defense Acquisition Visibility Environment
DoD	Department of Defense
DSN	Defense Switched Network
EMD	Engineering and Manufacturing Development
EVM	Earned Value Management
FD	Full Deployment
FDD	Full-Deployment Decision
FMS	Foreign Military Sales
FOC	Full Operational Capability
FRP	Full-Rate Production
FY	Fiscal Year
FYDP	Future Years Defense Program
ICD	Initial Capabilities Document
ICE	Independent Cost Estimate
Inc	Increment
IOC	Initial Operational Capability
IT	Information Technology
JROC	Joint Requirements Oversight Council
KPP	Key Performance Parameter
KSA	Key System Attribute

LRIP	Low-Rate Initial Production
MDA	Milestone Decision Authority
MDAP	Major Defense Acquisition Program
MILCON	Military Construction
N/A	Not Applicable
O	Objective
O&M	Operations and Maintenance
O&S	Operating and Support
ORD	Operational Requirements Document
OSD	Office of the Secretary of Defense
PAUC	Program Acquisition Unit Cost
PB	President's Budget
PE	Program Element
PEO	Program Executive Officer
PM	Program Manager
POE	Program Office Estimate
R&MF	Revolving and Management Funds
RDT&E	Research, Development, Test, and Evaluation
SAR	Selected Acquisition Report
SCP	Service Cost Position
T	Threshold
TBD	To Be Determined
TY	Then Year
U.S.	United States
U.S.C	United States Code
UCR	Unit Cost Reporting
USD(A&S)	Under Secretary of Defense (Acquisition and Sustainment)

(U) Program Description

Full Name
Amphibious Combat Vehicle Family of Vehicles

PNO
472

Lead Component
Department of the Navy

Joint Program
No

Adaptive Acquisition Pathway
Major Capability Acquisition

Acquisition Category
IC

Acquisition Status
Active Acquisition

Short Name
ACV FoV

Milestone Decision Authority
Component Acquisition Executive

Program Executive Office
PEO Land Systems

Acquisition Type
Major Defense Acquisition Program

Acquired Systems
ACV FoV

Mission
On January 8, 2019, an ADM was approved to combine the Amphibious Combat Vehicle (ACV) 1.1 Personnel Carrier program and the future ACV 1.2 program into one MDAP. 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 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 Ground Combat Element's (GCE) 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 (MAGTF).

(U) Responsible Office

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(U) Executive Summary

Program Highlights Since Last Report

ACV production continues on the ACV-P and ACV-C Mission Roll Variants (MRVs). 262 vehicles, including 253 ACV-Ps and nine ACV-Cs, have been produced and completed Acceptance, Test, and Inspection (ATI) as of March 22, 2024. 184 ACV vehicles have been fielded to 3d AA Bn and to Assault Amphibious School (AAS). Following the CMC Decision Brief on December 15, 2022, ACVs planned fielding to II and III MEF will instead be provided to I MEF to fulfill priorities for AAS, 3d AA BN and Amphibious Vehicle Test Branch (AVTB). Deputy Commandant for Plans, Policy and Operations has decided to field 12 ACVs to III MEF no later than July 2024.
Headquarters Marine Corps re-established the ACV Transition Task Force and a Transition Training Unit was established to build instructor capacity and proficiency certification processes for the Assault Amphibian Community.
Procurement funding shortfalls in FY25-FY26 risk full production of the Approved Acquisition Objective (AAO) for ACV-30 of 175 vehicles in the APB. The program is evaluating affordability in light of several fact of life changes. Current projection suggests current funding insufficient to procure the entire AAO of 632 vehicles.
New Equipment Training continues with the latest class graduated in March 2024 with a total of 90 Marines from 3DAA, AAS, and AVTB.
PM AAA worked with Amphibious Vehicle Test Branch (AVTB) in order to further understand the performance envelope and the characteristics of the ACV, in the surf zone with a focus on Significant Breaker Height (SBH) up to 6 feet and impacts with respect to littoral current. AVTB conducted 429 Surf transits from 4 feet SBH and below at Camp Pendleton and Naval Amphibious Base, Coronado. AVTB has also completed 130 total surf transits at Camp Rilea of which 59 runs were over 4 ft SBH. Aberdeen Test Center has completed the following test objectives: Time to Flood, Hatch Force Measurements, Characterization of Surf Condition required to Roll an ACV, Self-Righting, and Surf Recovery Phase 1 to inform egress procedures and better characterize ACV hydrodynamic stability in a surf environment. Sub-Scale Modeling and simulation efforts at the U.S. Army's Engineer Research and Development Center in Vicksburg, MS will continue this year to better understand the relationship in how the ACV navigates different surf conditions and SBH. The test report was delivered March 29, 2024. PM AAA will conduct an analysis of the data to refine the ACV performance envelope.
Design work continues on the ACV Family of Vehicles. After the Critical Design Review (CDR) May 17-19, 2022, six critical Request for Action (RFAs) were identified and require closure to complete Phase 3 for the ACV-30. As of October 30, 2023, only one critical RFA remains open and is in progress towards completion. The ACV-30 entered Phase 4 after contract award on August 15, 2022. During this phase three production representative test vehicles (PRTV) were built to support Government developmental and operational test. BAE delivered all three PRTVs in January 2024. The ACV-R Phase 1 contract was awarded on March 18, 2022 and included design and development efforts for the ACV-R through CDR. The ACV-R CDR was held 20-21 Sep 2023. The ACV-R Phase 2 contract was awarded April 4, 2024 and includes three PRTVs to support Government developmental and operational test.
PM AAA executed a Rapid Prototyping effort for a driver's trainer simulator via an Other Transaction Authority (OTA). Three vendors delivered prototypes on time. Marines from the AA community were involved in every step, from requirements generation to Limited and Field User Evaluation (LUE and FUE) thus ensuring the training capability would fit their needs. The FUE

was conducted at Camp Pendleton, CA, on October 16-27, 2023. PM AAA analyzed the data captured from the FUE in support of a production decision and developed the post-production award documents to expedite the process. A down select decision was made on December 13, 2023 and a production contract via the OTA was awarded March 28, 2024.

(U) History of Significant Developments Since Program Inception

Date	Description
March 2024	FRP Lot 4b and 4c was awarded for 40 ACV-P vehicles and support.
December 2023	FRP Lot 4a was awarded for 40 ACV-P vehicles and support with Continuing Resolution funds.
March 2023	FRP Lot 3b was awarded for 27 ACV-P vehicles and support.
March 2023	FRP Lot 3c was awarded for 17 ACV-C vehicles and support.
November 2022	FRP Lot 3a was awarded for 30 ACV-P vehicles with Continuing Resolution funds.
May 2022	FRP Lot 2c was awarded for 14 ACV-C vehicles and support.
March 2022	FRP Lot 2b was awarded for 36 ACV-P vehicles and support.
December 2021	FRP Lot 2a was awarded for 33 vehicles and support with Continuing Resolution funds.
February 2021	FRP Lot 1b was awarded for 36 vehicles and support.
December 2020	Full Rate Production (FRP) Decision approved on December 08, 2020.
December 2020	FRP Lot 1a was awarded for 36 vehicles and support with Continuing Resolution funds.
November 2020	Initial Operational Capability declared on November 13, 2020.
September 2020	Initial Operational Test and Evaluation successfully completed.
February 2020	LRIP Lot 3b was awarded for 26 vehicles.
December 2019	ACV Logistics Demonstration was completed on December 20, 2019.
October 2019	LRIP Lot 3a was awarded for 30 vehicles with Continuing Resolution funds.
July 2019	ADM approved LRIP Lot 3 to address production gap before full rate production.
January 2019	ADM combining ACV 1.1 and ACV 1.2 into ACV Family of Vehicles (with additional variants).
December 2018	LRIP Lot 2 was awarded for 30 vehicles.
October 2018	ACV High Surf Test concluded and requirement was met.
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.
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.
June 2018	Milestone C approval was granted. LRIP Lot 1 was awarded.
December 2017	Marine Corps Requirements Oversight Council approved the CPD for ACV 1.1
November 2017	Production Readiness Review was held.
October 2017	EMD vehicle deliveries from both competitors complete.
March 2017	Developmental Testing began.
March 2016	The GAO dismissed the protest and the Stop Work Orders were lifted allowing production to continue on the vehicle builds.
December 2015	General Dynamics filed a protest with the Government Accountability Office (GAO)

Date	Description
	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.
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).
March 2015	Development Request For Proposal (RFP) Release Decision Point achieved with the ADM
June 2014	Materiel Development Decision milestone achieved with the ADM authorizing entry into the acquisition process at Milestone B.

(U) Schedule

(U) Schedule Events

Events		APB Change 1 (Current) 11/24/2020 Objective / Threshold		Current Estimate 12/31/2023	Actual
Milestone B	MS B	Nov 2015	Nov 2015	-	19 Nov 2015
Preliminary Design Review	PDR	Jul 2016	Jul 2016	-	23 Jun 2016
Critical Design Review	CDR	Jul 2016	Jul 2016	-	23 Jun 2016
Milestone C	MS C	Jun 2018	Jun 2018	-	19 Jun 2018
Initial Operational Test & Evaluation	IOT&E	Sept 2020	Sept 2020	-	5 Sept 2020
Full Rate Production Decision	FRP Decision	Jun 2020	Dec 2020	-	8 Dec 2020
IOC	IOC	Aug 2020	Feb 2021	-	13 Nov 2020

Notes

None

Schedule Baseline Deviation Explanation

None

(U) Current Significant Schedule Risks and Risks Identified at Milestones/Decisions

Event	Date	Description
Current	12/31/2023	Schedule: BAE Production Capacity If BAE Systems cannot increase their production capacity from 5 vehicles per month at the Full Rate Production (FRP) decision to 9 vehicles per month in FY25 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. (Complete) 5) BAE Systems completes additional staffing process to support increase level of production. (On-going) 6) BAE Systems completes evaluation and implementation of process improvements and station re-arrangements in the assembly area to increase level of production. (On-going)
Current	12/31/2023	Cost: Adverse Marks or Adjustments in RDT&E If adverse Congressional marks or under-execution adjustments force the program to prioritize ACV-30 design and development at the expense of ACV-R

		design and development in FY25, then ACV-R production may defer until FY27 in a stand-alone production lot far below minimum sustaining rate (48 vehicles per year) at a greatly increased cost per vehicle. Mitigation: 1) Program has been communicating the risk with Congress and HQMC P&R. (On-going) 2) Program is working with BAE to increase its expenditure rate. (On-going)
Current	12/31/2023	Cost: AAO Shortfall in Production If POM-25 end game, sequestration cuts resulting from the Fiscal Responsibility Act, potential denial of the inflation initiative in POM-26, potential Congressional reductions, or internal USMC reductions to fund other USMC priority efforts occur, then the AAO set forth in the FRP APB could potentially reduce. Mitigation: 1) Communicating impacts of potential adjustments to all stakeholders with ASN advocacy. (On-going) 2) Contract negotiations to drive down vehicle cost. (On-going) 3) Potentially reduce WRMR and DMFA vehicle allocation. (On-going)

(U) Performance

Additional information for this section is provided in the classified annex to this submission.

(U) Performance Attributes

Sustainment Materiel Availability		**KPP**
Current Estimate **12/31/2023**		The ACV should have a Materiel Availability of 90% defined as operational end items/total population.
Demonstrated Performance **7/23/2020**		93%
APB Change 1 (Current) **11/24/2020**	**Objective**	The ACV should have a Materiel Availability of 90% defined as "operational end items/total population".
	Threshold	The ACV shall have a Materiel Availability of 75% defined as "operational end items/total population".
Sustainment Operational Availability		**KPP**
Current Estimate **12/31/2023**		ACV should have an Operational Availability of 90%.
Demonstrated Performance **7/23/2020**		91%
APB Change 1 (Current) **11/24/2020**	**Objective**	ACV should have an Operational Availability of 90%.
	Threshold	ACV shall have an Operational Availability of 81%.
Water Mobility		**KPP**
Current Estimate **12/31/2023**		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 Performance **1/31/2020**		Demonstrated 12 NM ship-to-shore in required conditions
APB Change 1 (Current) **11/24/2020**	**Objective**	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.
	Threshold	(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.
System Survivability: Egress Kill Zone/Protected Fuel		**KPP**
Current Estimate **12/31/2023**		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 manipulation of any fuel system components or repair.
Demonstrated Performance **2/27/2020**		Demonstrated 86.3 miles
APB Change 1 (Current) **11/24/2020**	**Objective**	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 manipulation of any fuel system components or repair.
	Threshold	Given ballistic penetration damage to the fuel system external to the engine compartment, the ACV shall be

		capable of maneuvering for 5 miles on level primary roads without manual manipulation of any fuel system components or repair.
Cyber Survivability		**KPP**
Current Estimate **12/31/2023**		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 GFE systems. The ACV-C will possess additional cyber related attributes.
Demonstrated Performance **8/16/2020**		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.
APB Change 1 **(Current)**	**Objective**	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-C will possess additional cyber-related attributes.
11/24/2020	**Threshold**	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 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.
Payload		**KPP**
Current Estimate **12/31/2023**		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 7,600 lbs.
Demonstrated Performance **2/28/2020**		Accommodated crew of 3 and 13 Infantry with required loads.
APB Change 1 **(Current)**	**Objective**	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 combat essential equipment (CEE) totaling 8,500 lbs.
11/24/2020	**Threshold**	ACV-P shall carry a crew (3) and 13 embarked Marines with full combat loads (which includes 1st DoS), additional 2nd DoS and CEE totaling 7,600 lbs.

Sea Connectors		KPP
Current Estimate **12/31/2023**		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.
Demonstrated Performance **4/30/2020**		Accommodated 2 ACV-Ps with LCAC operational limitation for weight
APB Change 1 **(Current)**	**Objective**	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 Landing Craft Air Cushioned (LCAC) 100 at GVW.
11/24/2020	**Threshold**	(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.
Energy		**KPP**
Current Estimate **12/31/2023**		An ACV shall achieve at least 1.28 mpg across the land portion of the mission 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.
Demonstrated Performance **12/21/2017**		Demonstrated 1.6 mpg (mission profile) 1.54 gph (idle)
APB Change 1 **(Current)**	**Objective**	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 providing 5.6 kW to power battle-command systems, weapon systems, and other key onboard systems.
11/24/2020	**Threshold**	An ACV shall achieve at least 1.28 mpg across the land portion of the mission 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.

(U) Requirement Source:

Sponsor(s): None

1. Document Type Not Provided
   Notes: ACV FoV CDD Version 2.0 (MROC Approved) dated July 16, 2019.

Notes

None

Performance Deviation Explanation

None

(U) Acquisition Budget Estimate

(U) Total Acquisition Estimates and Quantities

Category ($M) Base Year: 2014	APB Change 1 (Current) 11/24/2020 CY$ obs Objective / Threshold		Current Estimate PB 2025 CY$ obs / TY$ obs	
RDT&E	1,095.3	1,204.8	1,101.6	1,239.0
Procurement	3,663.8	4,030.2	3,395.0	4,425.1
MILCON	64.5	71.0	39.3	53.7
O&M	14.4	15.8	14.9	17.8
R&MF	-	-	0.0	0.0
Total Acquisition	4,838.0	-	4,550.8	5,735.6
Program Acquisition Unit Cost	7.136	7.850	7.189	9.061
Average Procurement Unit Cost	5.797	6.377	5.774	7.526
Program End-Item Quantity				
Development	46		45	
Procurement	632		588	
O&M-Acquired	-		-	

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.
Deviations from Current APB: The program received a higher than anticipated proposal for Full Rate Production (FRP) Lots 5-6 for 175 ACV-30 vehicles, support, and initial spares. This fact, combined with reductions stemming from the Fiscal Responsibility Act of 2023, compelled the program to reassess the affordability of the full complement of the ACV-30 AAO of 175 vehicles. The program is working with its resource sponsor to consider tradeoffs in quantity. In the meantime, the program submitted an Unfunded Priority List (UPL) request to address the shortfall in FY25 funding, revised its POM-26 position to address the shortfall in FY26 funding, and is also working with the service in evaluating the viability of pushing a portion of production into FY27. The proposal was received on 12 Dec 2023 and is currently in technical evaluation; negotiations are planned to begin July 2024 and are expected to conclude by EOM October 2024, with award in mid December 2024.
The acquisition phase for the program ends in FY2026, however the program has been resourced beyond FY2026 in the current Program Element (PE). Program resources beyond FY2026 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.

Quantity Notes

None

Cost Baseline Deviation Explanation

None

(U) Risk and Sensitivity Analysis

Current Procurement Estimate Risks (12/31/2023)	
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.
Current Baseline Risks (11/24/2020)	
None	
Original Baseline Risks (5/26/2016)	
The Current Baseline Estimate (May 2016) is ACV’s Original Baseline Estimate (November 2015).	

(U) Unit Costs

(U) Current Estimate Compared with Current Baseline

Category (CY$M) Base Year: 2014	Current Baseline 11/24/2020	Current Estimate PB 2025	% Change
Program Acquisition Unit Cost			
Acquisition Cost	4,838.0	4,550.8	
Program Quantity	678	633	
PAUC	7.136	7.189	0.75%
Average Procurement Unit Cost			
Procurement Cost	3,663.8	3,395.0	
Procurement Quantity	632	588	
APUC	5.797	5.774	-0.40%

(U) Current Estimate Compared with Original Baseline

Category (CY$M) Base Year: 2014	Original Baseline 05/26/2016	Current Estimate PB 2025	% Change
Program Acquisition Unit Cost			
Acquisition Cost	1,826.9	4,550.8	
Program Quantity	240	633	
PAUC	7.612	7.189	-5.55%
Average Procurement Unit Cost			
Procurement Cost	1,015.5	3,395.0	
Procurement Quantity	204	588	
APUC	4.978	5.774	15.99%

(U) Cost Growth Details

Impacts of Performance Changes on Unit Cost

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

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.

Status of Each Major Contract and Significant Factors Contributing to Cost and Schedule Variance; Projected Effects on Future Program Costs

See Contracts section.

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.

(U) Life-Cycle Costs

(U) Operating and Support and Disposal Cost Estimates Compared with Baseline

Category ($M) Base Year: 2014	APB Change 1 (Current) 11/24/2020 CY$ obs Objective / Threshold		Current Estimate CY$ obs / TY$ obs	
Total O&S	8,011.4	8,808.5	8,192.0	12,983.5
Total Disposal	-	-	10.0	-

(U) Current Cost Estimate Sources

Operating and Support Cost
Type: Program Office Estimate
Approved by: D, CAPE, November 08, 2023

Disposal/Demilitarization Cost
Type: Component Cost Position
Approved by: D, CAPE, November 03, 2020

Operating and Support Baseline Deviation Explanation

None

Cost Notes

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

(U) Operating and Support Variance with Prior Estimate

No Data

(U) Operating and Support Cost Element Structure Estimates by Acquired System

(CY$M) Base Year: 2014							
System	Unit-Level Manpower	Unit Operations	Maintenance	Sustaining Support	Continuing System Improvements	Other	Total
ACV FoV	5,256.0	425.0	1,314.0	708.0	489.0	-	8,192.0
Program	5,256.0	425.0	1,314.0	708.0	489.0	-	8,192.0

(U) Annual Operating and Support Costs per Unit Compared with Antecedent System

(CY$M) Base Year: 2014

System	Unit-Level Manpower	Unit Operations	Maintenance	Sustaining Support	Continuing System Improvements	Other	Total
ACV FoV	0.2	0.0	0.3	0.1	0.0	-	**0.6**
AAV (Antecedent)	0.3	0.0	0.2	0.2	0.1	0.0	**0.9**

(U) Operating and Support Cost Estimate Assumptions

System	Quantity to Sustain	Unit Expected Service Life (Years)	Unit of Measure	Fiscal Years Operational
ACV FoV	632	20.0	Vehicles	2020 - 2049
AAV (Antecedent)	1,313	20.0	Vehicles	1972 - 2030

Additional O&S Estimate Assumptions

None

Antecedent Estimate Assumptions

None

O&S Annual Cost Calculation Memo

None

(U) Technologies and Systems Engineering

(U) Current Significant Technical Risks and Risks Identified at Milestones/Decisions

Event	Date	Description
Current	12/31/2023	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) LOGCOM award a contract for the repair of ACV SECREPs. (Completed) 2) BAE Systems to identify parts with long lead times for government to assign NSNs. (Completed) 3) BAE to identify delivery dates for all repair parts, by month and year, to the Government. (Reached Resolution, BAE providing by 3QFY24)
Current	12/31/2023	Corrosion is present on fielded ACVs. Corrosion performance is not compliant with system requirements. ACV corrosion surveys, Log Demo, and PQDRs identified multiple areas of corrosion and instances of rust-welded in place fasteners. BAE Systems' design changes to LRIP vehicles were insufficient to improve ACV corrosion performance. Mitigation: 1) ??NSWC Carderock LRIP survey and requirements compliance assessment. (Completed) 2) PM AAA, USMC CPAC, & BAE corrosion working group compile, track and prioritize issues and develop candidate corrective action. (On-going) 3) BAE initiating corrective actions for struts, fastener plating and CPC application. (On-going) 4) Corrosion related reliability drivers being addressed as part of RCB & FRT? CTIS, alternator, struts, engine access, seal, pressure sensors, CROWS connectors. (On-going) 5) Continued CPAC CST service of fleet vehicles. (On-going) 6) Design ECPs, manufacturing process changes, and TM updates. (On-going)
Current	12/31/2023	BAE Systems has not provided SECREP Maintenance IETM Tasks for frequently consumed components. Marines cannot perform the Field Level Repairs and the USG will be forced to buy higher assemblies or have repairs conducted by the OEM. Mitigation: 1) The Government and BAE come to agreement on a list of SECREPs. (Completed) 2) BAE provide Provisioning data, repair procedures, and tool lists to the Government for the agreed to SECREPs. (Reached Resolution, BAE providing by 3QFY24) 3) Reach concurrence with BAE on SMR codes for the ACV engine and Transmission, BAE deliver Government test procedures for the hydraulic water drive motors, and Software Loader/Verifier information. (Reached Resolution, BAE providing by 3QFY24)

(U) Performing Activities and Contracts

(U) External Government Activities

None

(U) Contracts and Efforts

Contract Title	Contract Number / Effort	Contractor	Phase
ACV 1.1	M67854-16-C-0007	Science Applications International Corporation (SAIC)	Production
ACV Family of Vehicles	M67854-16-C-0006	BAE Systems Land & Armaments LP	Production

(U) Contract and Effort Identification, Price, Quantity and Performance			
Contract Number:	M67854-16-C-0007	**Order Number:**	-
Contract Title:	ACV 1.1	**Strategy:**	-
CAGE:	6XWA8 - Science Applications International Corporation (SAIC)	**Contracting Office:**	-
City, State/Province:	McLean, VA		
Effort Number:	-	**Supported Phase:**	Production
Type:	Firm-Fixed-Price	**Award Date:**	November 24, 2015
Latest Modification Date:	-	**Definitization Date:**	October 14, 2021
Latest Modification No.:	P00059	**Work Start Date:**	-
Technical Data Rights:	-		
Notes:	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.		

Initial Price (TY$M) Target	Initial Price (TY$M) Ceiling	Current Price (TY$M) Target	Current Price (TY$M) Ceiling	Estimate at Completion (TY$M) Contractor	Estimate at Completion (TY$M) PM	Initial Quantity	Current Quantity	Delivered Quantity
218.1	228.9	218.1	228.9	-	-	16	16	16

(U) Contract and Effort Identification, Price, Quantity and Performance			
Contract Number:	M67854-16-C-0006	**Order Number:**	-
Contract Title:	ACV Family of Vehicles	**Strategy:**	-
CAGE:	7B726 - BAE Systems Land & Armaments LP	**Contracting Office:**	-
City, State/Province:	Sterling Heights, MI		
Effort Number:	-	**Supported Phase:**	Production
Type:	Firm-Fixed-Price	**Award Date:**	November 24, 2015
Latest Modification Date:	November 21, 2023	**Definitization Date:**	January 25, 2022
Latest Modification No.:	P00185	**Work Start Date:**	-
Technical Data Rights:	-		

Notes:

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. FRP Lot 2B in March 2022; FRP Lot 2C in May 2022; and FRP Lot 3A in November 2022. Lastly, the ACV-30 Production Representative Test Vehicles were awarded in August 2022.
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.

Initial Price (TY$M) Target / Ceiling		Current Price (TY$M) Target / Ceiling		Estimate at Completion (TY$M) Contractor / PM		Initial Quantity	Current Quantity	Delivered Quantity
2,549.1	2,562.5	2,549.1	2,562.5	-	-	16	320	215

(U) Production

(U) Low-Rate Initial Production

	Original LRIP Determination	Current LRIP Determination
Total LRIP Quantity	56	116
Date	11/19/2015	6/19/2018
Reference	Milestone B ADM	ADM dated July 12, 2019
LRIP Period	FY 2018 - 2018	FY 2019 - 2019
Total Procurement Quantity	632	588
LRIP Percentage of Total	8.9%	19.7%

Rationale if LRIP Quantity Exceeds 10% of Total Procurement Quantity (Current Determination)

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).

LRIP Notes

None

(U) Deliveries and Expenditures

(U) Acquisition Funding

	Total Estimate	Actual to Date	Actual, Percent Complete
Years Appropriated	13	13	100.0%
Appropriations (TY, $M)	5,735.6	5,735.6	100.0%
Expenditures (TY, $M)	5,735.6	2,350.2	41.0%

(U) End Items Delivered

	Total Required	Planned to Date	Actual to Date	Actual, Percent Complete
Development	45			
ACV FoV		42	42	
Procurement	588			
ACV FoV		242	242	
Total	**633**	**284**	**284**	**44.9%**

Notes

The cumulative expenditures Actual to Date were based on EOM Feb.

(U) International Program Aspects

General Memo

N/A

Exportability and Business Issues

The program office completed the cost estimate for the foreign military sale of ACVs. The International Program Office sent out letters to international partners letting them know the Marine Corps is accepting letters of request for customer engagement. PM AAA met with the Spanish Marine Corps in Madrid, Spain, during May 2023 to discuss ACV foreign military sales. Spain is currently considering Direct Commercial Sales or Foreign Military Sales and continues to meet on a regular basis.

Is design for international exportability planned?	Yes	**Industry/Partner Exportability Cost-Sharing?**	-

Program Protection: Technology Security and Foreign Disclosure Issues

N/A

(U) Agreements

No International Agreements have been defined for ACV FoV

Modernized
Selected Acquisition Report
Supplement

Amphibious Combat Vehicle Family of Vehicles
(ACV FoV)

FY 2025 President's Budget
As of: December 31, 2023

MSAR Supplement Sections

Program Description

Program Use of the Adaptive Acquisition Framework

Technologies and Systems Engineering

Funding Sources (Acquisition)

Funding Sources (Operating and Support)

Acquisition Estimate and Quantity Summary

Annual Acquisition Estimates by Appropriation Account

Acquired System Annual End-Item Quantities by Appropriation Account

Nuclear Costs

Operational Fielding Plan

O&S Independent Cost Estimate

Annual Operating and Support Estimates by Cost Element

Program Description

Full Name
Amphibious Combat Vehicle Family of Vehicles

Short Name
ACV FoV

PNO
472

Lead Component
Navy

AAF Pathway
MCA

Acquisition Type
MDAP

Acquired Systems
ACV FoV

Related Programs

Full Name	PNO	Pathway	Type	ACAT/ BCAT	Acquisition Status	Costs in SAR? Acq	O&S
N/A						No	No

Program Use of the Adaptive Acquisition Framework

This acquisition is accomplished by a single program in the Major Capability Acquistion Pathway.

Technologies and Systems Engineering

Amphibious Combat Vehicle Family of Vehicles

Major Software Efforts

Title	Status	Fielding Date	Description
N/A			

Major Engineering Changes

Title	Original Need Date	Fielding Date	Description, Rationale and Program Impacts
N/A			

Funding Sources (Acquisition)

Acquisition Funding Notes

None

Amphibious Combat Vehicle Family of Vehicles

Category	Account	BA	Line Item	Program Element	RDT&E Project	Shared	Sunk

Note: N/A

Funding Sources (Operating and Support)

Note: Budget lines fund activites executed by the Program Office or Sustainment Office.

Operating and Support Funding Notes

None

Amphibious Combat Vehicle Family of Vehicles

Category	Account	BA	Line Item	Program Element	RDT&E Project	Shared	Sunk

Note: N/A

Acquisition Estimate and Quantity Summary

Amphibious Combat Vehicle Family of Vehicles

Acquisiton Estimates

Category	PB 2025	TY ($M)	Current Base Year CY2014 ($M)	Original Base Year CY2014 ($M)	Report Fiscal Year CY2024 ($M)
RDT&E		1,239.0	1,101.6	1,101.6	1,430.3
Procurement		4,425.1	3,395.0	3,395.0	4,407.9
MILCON		53.7	39.3	39.3	51.0
O&M		17.8	14.9	14.9	19.4
Total Acquisition		5,735.5	4,550.7	4,550.7	5,908.5
PAUC		9.061	7.189	7.189	9.334
APUC		7.526	5.774	5.774	7.496

Acquisiton End-Item Quantities

System	PB 2025	Development	Procurement
ACV FoV		45	588
Total		**45**	**588**

Unit Description

ACV is an advanced generation eight-wheeled armored personnel carrier. The base vehicle is the ACV-P (Personnel Carrier), followed by three supporting mission role variants, the ACV-C (Command and Control), the ACV-30 (30mm Gun Variant), and the ACV-R (Recovery/Maintenance Variant).

Current and Future Years Defense Program Summary, TY($M)

Appropriation	Prior	2024	2025	2026	2027	2028	2029	To Complete	Total
RDT&E	1,042.6	90.9	60.2	45.3	-	-	-	-	1,239.0
Procurement	2,202.8	574.7	831.4	816.2	-	-	-	-	4,425.1
MILCON	22.0	-	-	-	31.7	-	-	-	53.7
O&M	11.4	3.3	1.5	1.6	-	-	-	-	17.8
PB 2025 Total	**3,278.9**	**668.9**	**893.1**	**863.0**	**31.7**	**-**	**-**	**-**	**5,735.5**

Annual Acquisition Estimates by Appropriation Account

(Aligned to Budget Position: PB 2025)

Amphibious Combat Vehicle Family of Vehicles

Source for TY$-CY$ Conversion: ASN FMB-6 Inflation Rates and Outlay Factors for DA, DoN and DW accounts: 17 Jan 2024

1319N - Research, Development, Test & Eval, Navy					
fiscal year		Other/ Unallocated	Total TY($M)	Weighted Rate	Total CY2014 ($M)
Total		**1,239.0**	**1,239.0**	**-**	**1,101.6**
2012		42.015	42.0	0.988021	42.5
2013		79.905	79.9	0.998396	80.0
2014		31.553	31.6	1.012503	31.2
2015		98.610	98.6	1.025243	96.2
2016		196.275	196.3	1.044272	188.0
2017		131.290	131.3	1.063810	123.4
2018		149.944	149.9	1.089868	137.6
2019		64.311	64.3	1.110859	57.9
2020		48.397	48.4	1.151709	42.0
2021		42.159	42.2	1.203472	35.0
2022		71.237	71.2	1.266344	56.3
2023		86.926	86.9	1.304044	66.7
2024		90.898	90.9	1.333812	68.1
2025		60.181	60.2	1.362106	44.2
2026		45.290	45.3	1.390710	32.6

Annual Acquisition Estimates by Appropriation Account

(Aligned to Budget Position: PB 2025)

Amphibious Combat Vehicle Family of Vehicles

Source for TY$-CY$ Conversion: ASN FMB-6 Inflation Rates and Outlay Factors for DA, DoN and DW accounts: 17 Jan 2024

1109N - Procurement, Marine Corps									
fiscal year	End Item Recurring Flyaway	Non-End Item Recurring Flyaway	Non-Recurring Flyaway	Initial Spares	Depot Activation	Other/ Unallocated	Total TY($M)	Weighted Rate	Total CY2014 ($M)
Total	**3,014.7**	**360.5**	**197.5**	**161.1**	**-**	**691.3**	**4,425.1**	**-**	**3,395.0**
2012							-	0.994472	-
2013							-	1.007388	-
2014							-	1.020602	-
2015							-	1.036108	-
2016							-	1.055416	-
2017							-	1.077247	-
2018	103.810	32.337	9.833	5.569		10.712	162.3	1.099500	147.6
2019	118.685	17.649	10.436	6.145		24.652	177.6	1.127922	157.4
2020	206.413	34.916	9.309	19.837		50.297	320.8	1.172178	273.7
2021	290.259	40.627	12.520	13.557		93.400	450.4	1.230434	366.0
2022	377.474	25.697	32.299	25.534		85.228	546.2	1.284245	425.3
2023	334.024	52.976	42.786	27.127		88.727	545.6	1.318703	413.8
2024	332.389	48.350	25.903	20.657		147.367	574.7	1.347916	426.3
2025	633.155	53.910	32.559	21.146		90.652	831.4	1.376390	604.1
2026	618.448	54.056	21.833	21.512		100.307	816.2	1.405294	580.8

Annual Acquisition Estimates by Appropriation Account

(Aligned to Budget Position: PB 2025)

Amphibious Combat Vehicle Family of Vehicles

Source for TY$-CY$ Conversion: ASN FMB-6 Inflation Rates and Outlay Factors for DA, DoN and DW accounts: 17 Jan 2024

1106N - Operation & Maintenance, Marine Corps					
fiscal year		Other/ Unallocated	Total TY($M)	Weighted Rate	Total CY2014 ($M)
Total		**17.8**	**17.8**	**-**	**14.9**
2012		-	-	0.986041	-
2013		0.487	0.5	0.996577	0.5
2014		0.435	0.4	1.009835	0.4
2015		1.290	1.3	1.021381	1.3
2016		1.044	1.0	1.036695	1.0
2017		0.814	0.8	1.056217	0.8
2018		0.281	0.3	1.078237	0.3
2019		1.350	1.4	1.098135	1.2
2020		1.376	1.4	1.126811	1.2
2021		1.408	1.4	1.181442	1.2
2022		1.446	1.4	1.246466	1.2
2023		1.463	1.5	1.289475	1.1
2024		3.299	3.3	1.320437	2.5
2025		1.522	1.5	1.348729	1.1
2026		1.552	1.6	1.377052	1.1

Annual Acquisition Estimates by Appropriation Account

(Aligned to Budget Position: PB 2025)

Amphibious Combat Vehicle Family of Vehicles

Source for TY$-CY$ Conversion: ASN FMB-6 Inflation Rates and Outlay Factors for DA, DoN and DW accounts: 17 Jan 2024

1205N - Military Construction, Navy					
fiscal year		Other/ Unallocated	Total TY($M)	Weighted Rate	Total CY2014 ($M)
Total		**53.7**	**53.7**	**-**	**39.3**
2012			-	1.007841	-
2013			-	1.022197	-
2014			-	1.037529	-
2015			-	1.066772	-
2016			-	1.091635	-
2017			-	1.119753	-
2018			-	1.161308	-
2019		10.455	10.5	1.205982	8.7
2020		11.570	11.6	1.256907	9.2
2021		-	-	1.300585	-
2022		-	-	1.329835	-
2023		-	-	1.360725	-
2024		-	-	1.389879	-
2025		-	-	1.419141	-
2026		-	-	1.448943	-
2027		31.660	31.7	1.479371	21.4

Acquired System Annual End-Item Quantities by Appropriation Account

(Aligned to Budget Position: PB 2025)

Amphibious Combat Vehicle Family of Vehicles

1319N - Research, Development, Test & Eval, Navy				
fiscal year	ACV FoV			Total
Total	**45**			**45**
Undistributed				-
2016	32			32
2017				-
2018	4			4
2019	3			3
2020				-
2021				-
2022	3			3
2023				-
2024	3			3
2025				-
2026				-

Acquired System Annual End-Item Quantities by Appropriation Account

(Aligned to Budget Position: PB 2025)

Amphibious Combat Vehicle Family of Vehicles

1109N - Procurement, Marine Corps				
fiscal year	ACV FoV			Total
Total	**588**			**588**
Undistributed				-
2016				-
2017				-
2018	26			26
2019	30			30
2020	56			56
2021	72			72
2022	83			83
2023	76			76
2024	80			80
2025	80			80
2026	85			85

Nuclear Costs

Amphibious Combat Vehicle Family of Vehicles

Program's Use of Department of Energy Resources

None

Operational Fielding Plan

Amphibious Combat Vehicle Family of Vehicles

System: ACV FoV

Fielding and Inventory Notes

Fielding of the ACV commenced during FY2021 and will continue through FY2028. Of the 632 ACVs being procured 593 will be fielded for operational use, while 39 will be stored as part of the War Reserve Munitions Requirement (WRMR).

ACV FoV Fielding Plan and Inventory

fiscal year	Store	Field	Expend/Loss	Decommission	Inventory
2023					168
2024		83			251
2025	3	70			324
2026		112			436
2027	11	71			518
2028	25	89			632
2029					632

O&S Independent Cost Estimate

Amphibious Combat Vehicle Family of Vehicles

Independent and Current Cost Estimate Comparison

Category CY2014 ($M)	Independent Cost Estimate 12/8/2020	Current Estimate 11/8/2023	Variance with ICE (%)
Unit-Level Manpower	5,167.0	5,256.0	2%
Unit Operations	486.0	425.0	-13%
Maintenance	1,171.0	1,314.0	12%
Sustaining Support	772.0	708.0	-8%
Continued System Improvements	413.0	489.0	18%
Other			-
Total O&S	**8,009.0**	**8,192.0**	**2%**

Independent Cost Estimate Source

Event: Full Rate Production Decision
Type: Component Cost Position
Approved by: MDA, December 8, 2020
Note: N/A

Current Cost Estimate Source

Type: Program Office Estimate
Approved by: PM AAA, November 8, 2023
Note: N/A

Cost Estimate Variance Explanation

1. While the total O&S estimate has been stable, the distribution of costs between cost elements has changed as additional information has become available. Current estimate compared to APB:

a. Unit Level Manpower – This O&S cost driver (65% of all O&S) has grown 1.7% using latest inflation and escalation and an assumption of additional maintenance manpower.

b. Unit Operations – Reduced 12.6% due to modeling realistic fleet training ammunition usage based on data since 2018.

c. Maintenance – Increased 12.2% primarily due to incorporation of updated, detailed ACV-30 material pricing and evolving redistribution of responsibilities between unit, intermediate and depot repairs.

d. Sustaining Support & Continuing System Improvements – Considered together, these increased 1.1% due to inflation and better definition of tasking within these cost elements.

Annual Operating and Support Estimates by Cost Element

Amphibious Combat Vehicle Family of Vehicles

System: ACV FoV

Source for TY-CY Conversion:

Operating and Support Cost Elements							
fiscal year	1.0 Unit-Level Manpower	2.0 Unit Operations	3.0 Maintenance	4.0 Sustaining Support	5.0 Continuing System Improvements	Other	Total CY2014 ($M)
Total	-	-	-	-	-	-	-