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The Army's Armored Multi-Purpose Vehicle (AMPV): Background and Issues for Congress

Andrew Feickert

Specialist in Military Ground Forces

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Summary

The Armored Multi-Purpose Vehicle (AMPV) is the Army's proposed replacement for the Vietnam-era M-113 personnel carriers, which are still in service in a variety of support capacities in Armored Brigade Combat Teams (ABCTs). While M-113s no longer serve as infantry fighting vehicles, five variants of the M-113 are used as command and control vehicles, general purpose vehicles, mortar carriers, and medical treatment and evacuation vehicles. An estimated 3,000 of these M-113 variants are currently in service with the Army.

The AMPV is intended to be a "vehicle integration" or non-developmental program (candidate vehicles will be either existing vehicles or modified existing vehicles—not vehicles that are specially designed and not currently in service). Some suggest that a non-developmental vehicle might make it easier for the Army to eventually field this system to the force, as most of the Army's most recent developmental programs, such as the Ground Combat Vehicle (GCV), the Future Combat System (FCS), the Crusader self-propelled artillery system, and the Comanche helicopter, were cancelled before they could be fully developed and fielded.

On November 26, 2013, the Army issued a Request for Proposal (RFP) for the AMPV. This RFP stipulated that the Army plans to award a five-year EMD contract in May 2014 worth \$458 million to a single contractor for 29 prototypes. While the March 2013 RFP established an Average Unit Manufacturing Cost Ceiling for each AMPV at \$1.8 million, this was rescinded to permit vendors greater flexibility. The EMD phase is scheduled to run between FY2015 and FY2019, followed by three years of low-rate initial production (LRIP) starting in 2020. The Army currently plans to procure 2,907 AMPVs to replace M-113s in ABCTs at an estimated program cost of \$10.233 billion. The Army also has plans to replace 1,922 M-113s at Echelons Above Brigade (EAB), but requirements for these vehicles have not yet been established. While the Army would like a pure fleet of AMPVs, others support a mixed fleet of wheeled and tracked AMPV variants.

On December 23, 2014, the Army announced it had selected BAE Systems Land and Armaments L.P. as the winner of the EMD contract. The initial award is for 52 months, valued at about \$382 million. In addition, the award provides for an optional Low-Rate Initial Production (LRIP) phase. If this phase is awarded, BAE would produce an additional 289 vehicles for a total contract value of \$1.2 billion. This EMD contract does not include EAB AMPV variants.

The FY2016 President's budget request for the AMPV is \$230.2 million in RDT&E funding. This \$137.9 million increase from FY2015 funds final prototype designs and integration of components into the AMPV chassis.

The FY2015 National Defense Authorization Act authorizes full funding for the AMPV but limits funding to 80% until the Secretary of the Army provides congressional defense committees a report on the Army's plans to replace all EAB M-113s, as well as examining the feasibility of using wheeled AMPV medical variants in ABCTs.

Potential issues for Congress include the continuing AMPV pure versus mixed fleet debate and program cost growth between FY2015 and FY2016. This report will be updated.

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Background

In early 1956, the Army began the development of an air-transportable, armored multi-purpose vehicle family intended to provide a lightweight, amphibious armored personnel carrier for armor and mechanized infantry units.¹ Known as the M-113, it entered production in 1960 and saw extensive wartime service in Vietnam. Considered a reliable and versatile vehicle, a number of different variations of the M-113 were produced to fulfill such roles as a command and control vehicle, mortar carrier, and armored ambulance, to name but a few. The Army began replacing the M-113 infantry carrier version in the early 1980s with the M-2 Bradley Infantry Fighting Vehicle, but many non-infantry carrier versions of the M-113 were retained in service. According to reports, about 3,000 M-113 variants are currently still in use.²

The Armored Multi-Purpose Vehicle (AMPV)³

According to the Army:

The Armored Multi-Purpose Vehicle (AMPV) is the proposed United States Army program for replacement of the M-113 Family of Vehicles (FOV) to mitigate current and future capability gaps in force protection, mobility, reliability, and interoperability by mission role variant within the Heavy Brigade Combat Team (HBCT) [now known as the Armored Brigade Combat Team – ABCT]. The AMPV will have multiple variants tailored to specific mission roles within HBCT. Mission roles are as follows: General Purpose, Medical Evacuation, Medical Treatment, Mortar Carrier, and Mission Command. AMPV is a vehicle integration program.

The Army's AMPV Requirements⁴

Regarding the decision to replace remaining M-113s, the Army notes:

- The M-113 lacks the force protection and mobility needed to operate as part of combined arms teams within complex operational environments. For example, “commanders will not allow them to leave Forward Operating Bases (FOBs) or enter contested areas without extensive mission protection and route clearance.”⁵
- The use of other vehicles for M-113 mission sets (casualty evacuations, for example) reduces unit combat effectiveness.

¹ Information in this section is taken from Christopher F. Foss, *Jane's Armour and Artillery, 2011-2012*, 32nd Edition, pp. 470-478.

² Tony Bertuca, “Optimism Emerges for the AMPV Program, Though Pre-RFP Work Remains,” *InsideDefense.com*, August 16, 2013.

³ From the Army's AMPV Program website, <https://contracting.tacom.army.mil/majorsys/ampv/ampv.htm>, accessed September 13, 2013.

⁴ Information in this section is taken from an Army briefing: “AMPV Industry Day,” April 23, 2013.

⁵ *Ibid.*, p. 13.

The majority of the Army's M-113s are found in Armored Brigade Combat Teams (ABCTs), where they comprise 32% of the tracked armored vehicles organic to that organization. The 114 M-113 variants in the ABCT are distributed as follows:

Table I. M-113 Distribution in ABCTs, by Variant

M-113 Variant Type	Number of M-113s
M-113A3 General Purpose (GP)	19
M-1068A3 Mission Command (MCmd)	41
M-1064 Mortar Carrier (MC)	15
M-113A3 Medical Evacuation (ME)	31
M-577 Medical Treatment (MT)	8

Source: Information in this table is taken from an Army briefing: "AMPV Industry Day," April 23, 2013, p. 13.

AMPVs at Echelons Above Brigade (EAB)⁶

In addition to the AMPV requirement in the ABCTs, the Army also plans on procuring an additional 1,922 AMPVs to replace M-113s in echelons above brigade (EAB).⁷ The Army notes that these AMPVs might have different requirements than the ABCT AMPVs, and the Army is currently assessing these requirements. Currently, no contract awards have been made for EAB AMPVs.

Program Overview⁸

According to the Government Accountability Office (GAO), in March 2012, the Under Secretary of Defense for Acquisition, Technology, and Logistics (USD, AT&L) approved a materiel development decision for AMPV and authorized the Army's entry into the materiel solution analysis phase. The Army completed the AMPV analysis of alternatives (AoA) in July 2012 and proposed a non-developmental vehicle (the candidate vehicle will be either an existing vehicle or a modified existing vehicle—not a vehicle that is specially designed and not in current service). Because the AMPV is to be a non-developmental vehicle, DOD has decided that the program will start at Milestone B, Engineering and Manufacturing Development (EMD) Phase and skip the Milestone A, Technology Development Phase.

⁶ Information in this section is from PEO Ground Combat Systems, AMPV Program's EMD Contract Awarded to BAE, December 24, 2014.

⁷ Echelon Above Brigade (EAB) refers to Army combat units larger than brigades—generally division and corps sized—as well as non-ABCT support brigades. Examples of EAB units that have M-113s that will be replaced with AMPVs include Armored Division and Corps headquarters and Combat Engineer Brigades.

⁸ Information in this section is taken from the United States Government Accountability Office, Defense Acquisitions: Assessments of Selected Weapon Programs, GAO-13-294SP, March 2013, p. 133, and an Army briefing: "AMPV Industry Day," April 23, 2013 and Tony Bertuca, "Optimism Emerges for AMPV Program Though Pre-RFP Work Remains," *InsideDefense.com*, August 16, 2013.

The Army plans for a full and open competition and will award one industry bidder a 42-month EMD contract to develop all five AMPV variants. A draft Request for Proposal (RFP) released in March 2013 stated the EMD contract would be worth \$1.46 billion, including \$388 million for 29 EMD prototypes for testing between 2014 and 2017 and \$1.08 billion for 289 low-rate initial production (LRIP) models between 2018 and 2020. The Army had planned on releasing the formal RFP in June 2013 but instead slipped the date until mid-September 2013, citing a delayed Defense Acquisition Board review attributed in part to Department of Defense civilian furloughs.⁹ The EMD contract award was originally planned for late 2014. The Army is also planning for an average unit manufacturing cost (AUMC) of \$1.8 million per vehicle.

Department of Defense (DOD) Approves AMPV Program¹⁰

On November 26, 2013, DOD issued an acquisition decision memorandum (ADM) officially approving the Army's entry into the Milestone B, Engineering and Manufacturing Development (EMD) Phase. The ADM directed the Army to impose an Average Procurement Unit Cost less than or equal to \$3.2 million at a production rate of not less than 180 vehicles per year. In addition, operations and sustainment costs are to be less than or equal to \$400,000 per vehicle per year. The Army is also directed to down select to a single prime contractor at the completion of Milestone B.

Army Issues AMPV Draft Request for Proposal (RFP)¹¹

Also on November 26, 2013, the Army issued a new draft Request for Proposal (RFP) for the AMPV. This RFP stipulated the Army planned to award a five-year EMD contract in May 2014 worth \$458 million to a single contractor for 29 prototypes. While the March 2013 RFP established an Average Unit Manufacturing Cost Ceiling for each AMPV at \$1.8 million, this was rescinded to permit vendors greater flexibility. The EMD phase was scheduled to run between FY2015 and FY2019, followed by three years of low-rate initial production (LRIP) starting in 2020.

⁹ Tony Bertuca, "Army's Armored Multi-Purpose Vehicle RFP Scheduled for Mid-September," *InsideDefense.com*, August 9, 2013.

¹⁰ Information in this section is taken from Department of Defense, "Armored Multi-Purpose Vehicle Pre-Engineering and Manufacturing Development Request for Proposals Acquisition Decision Memorandum," November 26, 2013 and Tony Bertuca, "DOD Officially OKs Army's Armored Multi-Purpose Vehicle Program; RFP Hits the Street," *InsideDefense.com*, November 26, 2013.

¹¹ Information in this section is taken from Solicitation, Offer, and Award: Armored Multi-Purpose Vehicle, Number: W56HZV-13-R-0022, November 26, 2013 and Tony Bertuca, "DOD Officially OKs Army's Armored Multi-Purpose Vehicle Program; RFP Hits the Street," *InsideDefense.com*, November 26, 2013.

Projected ABCT AMPV Production Quantities¹²

Under 2013 plans and projected force structure, the Army planned to start full rate production of the ABCT AMPV in FY2020 at the rate of two to three ABCTs per year. Total vehicle production by variant is depicted in the following table:

Table 2. 2013 Projected ABCT AMPV Production, by Variant

Variant to Be Replaced	ABCT Total	Training and Doctrine Command and Testing (See Notes)	Total Vehicles by Quantity
M-113A3 General Purpose (GP)	462	58	520
M-1068A3 Mission Command (MCmd)	899	92	991
M-1064 Mortar Carrier (MC)	348	36	384
M-113A3 Medical Evacuation (ME)	736	52	788
M-577 Medical Treatment (MT)	194	20	214
Totals	2,639	258	2,897

Source: Information in this table is taken from an Army briefing: “AMPV Industry Day,” April 23, 2013, p. 23.

Notes: Training and Doctrine Command (TRADOC), the Army command responsible for training the force, would use AMPVs at its various schools and courses for training soldiers. Testing AMPV quantities would be allocated to various Army and Department of Defense organizations responsible for testing vehicles.

Revised Projected ABCT AMPV Production Quantities¹³

GAO’s March 2014 Assessment of Selected Weapons Programs report notes the new production quantity for the ABCT AMPV is 2,907 vehicles—a 10 vehicle increase over 2013 quantities. Discussions with the AMPV Program Manager revealed the 10 extra vehicles would be used for testing purposes.¹⁴

¹² Information in this section is taken from an Army briefing: “AMPV Industry Day,” April 23, 2013.

¹³ United States Government Accountability Office, Defense Acquisitions: Assessments of Selected Weapon Programs, GAO-14-340SP, March 2014, p. 129.

¹⁴ CRS Meeting with AMPV Program Manager May 20, 2014.

2014 Projected Total Program Costs¹⁵

For a 2,907 vehicle procurement, GAO estimated total program costs as follows (FY2014 dollars):

- Research and Development: \$779.9 million.
- Procurement: \$9.443 billion.
- Estimated Total Program Cost: \$10.223 billion.

2015 Projected Total Program Costs¹⁶

In its FY2016 budget request, the Army reportedly revised its total program costs for 2,907 AMPVs:

- Research and Development: \$ 1 billion.
- Procurement: \$ 11.8 billion.
- Estimated Total Program Cost: \$12.8 billion.

The Army did not provide details regarding the almost \$2.6 billion dollars cost growth for the program.

Recent Program Activities

Army Awards ABCT AMPV Contract to BAE¹⁷

On December 23, 2014, the Army announced it had selected BAE Systems Land and Armaments L.P. as the winner of the EMD contract. The initial award is for 52 months valued at about \$382 million. During this period of performance, BAE will produce 29 vehicles, which will be put through “rigorous developmental and operational testing.” In addition, the award provides for an optional Low-Rate Initial Production (LRIP) phase. If this phase is awarded, BAE would produce an additional 289 vehicles for a total contract value of \$1.2 billion.

EMD Contract Does Not Include EAB AMPVs¹⁸

The Army, in its announcement, emphasized the BAE EMD contract did not pertain to the 1,922 EAB AMPVs. As previously noted, these AMPVs might have different requirements than the

¹⁵ Ibid.

¹⁶ Jason Sherman, “Army Forecasts \$12.8 Billion Tab for AMPV (Updated),” *InsideDefense.com*, February 17, 2015.

¹⁷ Information in this section is from PEO Ground Combat Systems, AMPV Program’s EMD Contract Awarded to BAE, December 24, 2014.

¹⁸ Ibid.

ABCT AMPVs, and the Army is currently assessing these requirements. The Army did not say when it envisioned making a contract award for EAB AMPVs.

Budgetary Issues

FY2016

FY2016 President's Budget Request¹⁹

The FY2016 President's budget request for the AMPV is \$230.2 million in RDT&E funding. This \$137.9 million increase from FY2015 funds final prototype designs and integration of components into the AMPV chassis.

Potential Issues for Congress

Mixed AMPV Fleet Debate

Some Members have expressed concerns with the Army's current AMPV RFP. They propose the current RFP, which stipulates the selection of a single vendor, be modified so a mixed fleet (both tracked and wheeled) of AMPVs can be acquired. This could essentially make the AMPV procurement a multi-vendor effort. The Members supporting this course of action contend a mixed fleet is "sensible, sustainable, cost effective for the taxpayer, and most importantly, best for the warfighter."²⁰

In December 2014, a number of Members sent letters to Army and DOD leadership requesting the Army delay awarding the AMPV ambulance variant contract until after congressional defense committees have had adequate time to review congressionally mandated reports.²¹

Other Members reportedly support continuing the pure AMPV fleet approach, noting "any changes to the AMPV acquisition will result in delays and increase costs to the program for the Army" and that "our priority is to ensure a timely procurement of a more survivable and more mobile personnel carrier for our soldiers."²²

FY2015 National Defense Authorization Act legislative language²³ calls for, among other things, further examination of the use of wheeled AMPV variants at both Echelons Above Brigade

¹⁹ Office of the Under Secretary of Defense (Comptroller)/Chief Financial Officer, United States Department of Defense Fiscal Year 2016 Budget Request, Program Acquisition Cost by Weapon System, February 2015, p. 3-3.

²⁰ Letter to Secretary Frank Kendall, Under Secretary of Defense for Acquisitions, Technology, and Logistics, from Rep. Mike Rogers et al., April 3, 2014.

²¹ Tony Bertuca, "Lawmakers Push Pentagon to Delay AMPV Award," *InsideDefense.com*, December 5, 2014.

²² Tony Bertuca, "Two More Senators Support BAE in AMPV Letter to Senate Appropriators," *InsideDefense.com*, June 27, 2014.

²³ Rules Committee Print 113-58, House Amendment to the Text of S. 1847, [Showing the text of the Carl Levin and Howard P. "Buck" McKeon National Defense Authorization Act for Fiscal Year 2015], December 2, 2014. Complete (continued...)

(EAB) as well as for medical evacuation purposes. This study, due to Congress no later than March 1, 2015, could have an impact the Army's pending EAB AMPV EMD contract award.

The Army contends if a mixed AMPV fleet proposal is adopted, the overall AMPV program could be delayed by up to three years because the current RFP would need to be pulled back and modified.²⁴ The Army also suggests such a change could cost the AMPV program an additional \$300 million.²⁵

Given the level of debate as well as a variety of concerns expressed by Members, it is possible the issue of either a pure or mixed AMPV fleet will not be resolved in the near future. If this becomes the case, it might be possible to defer the production of the AMPV medical evacuation (ME) and medical treatment (MT) variants as well as other variants that could fall into the Echelons Above Brigade (EAB) category without a major program disruption. As part of a potential pure or mixed AMPV fleet examination, Congress could ask the Army to look at a variety of development and

(...continued)

language is cited in the following passage:

SEC. 216. LIMITATION ON AVAILABILITY OF FUNDS FOR ARMORED MULTI-PURPOSE VEHICLE PROGRAM.

(a) LIMITATION.—Of the funds authorized to be appropriated by this Act or otherwise made available for fiscal year 2015 for research, development, test, and evaluation, Army, for the armored multi-purpose vehicle program, not more than 80 percent may be obligated or expended until the date on which the Secretary of the Army submits to the congressional defense committees the report under subsection (b)(1).

(b) REPORT.—

(1) IN GENERAL.—Not later than March 1, 2015, the Secretary of the Army shall submit to the congressional defense committees a report on the armored multi-purpose vehicle program.

(2) MATTERS INCLUDED.—The report under paragraph (1) shall include the following:

(A) An identification of the existing capability gaps of the M–113 family of vehicles assigned, as of the date of the report, to units outside of combat brigades.

(B) An identification of the mission roles that are in common between—

(i) such vehicles assigned to units outside of combat brigades; and

(ii) the vehicles examined in the armor brigade combat team during the armored multi-purpose vehicle analysis of alternatives.

(C) The estimated timeline and the rough order of magnitude of funding requirements associated with complete M–113 family of vehicles divestiture within the units outside of combat brigades and the risk associated with delaying the replacement of such vehicles.

(D) A description of the requirements for force protection, mobility, and size, weight, power, and cooling capacity for the mission roles of M–113 family of vehicles assigned to units outside of combat brigades.

(E) A discussion of the mission roles of the M–113 family of vehicles assigned to units outside of combat brigades that are comparable to the mission roles of the M–113 family of vehicles assigned to armor brigade combat teams.

(F) A discussion of whether a one-for-one replacement of the M–113 family of vehicles assigned to units outside of combat brigades is likely.

(G) With respect to mission roles, a discussion of any substantive distinctions that exist in the capabilities of the M–113 family of vehicles that are needed based on the level of the unit to which the vehicle is assigned (not including combat brigades).

(H) A discussion of the relative priority of fielding among the mission roles.

(I) An assessment for the feasibility of incorporating medical wheeled variants within the armor brigade combat teams.

²⁴ Ibid.

²⁵ Ibid.

production scenarios which take into account different equipment fielding schedules with the intent of minimizing both cost and operational risk.

Total Program Cost Growth between FY2015 and FY2016

As previously noted, the Army did not provide details regarding the almost \$2.6 billion dollars total cost growth for the program between FY2015 and FY2016. Congress might choose to examine the specific circumstances that led to this total cost growth, as these details are not evident in FY2016 budget request documentation available to the public.

Author Contact Information

Andrew Feickert
Specialist in Military Ground Forces
afeickert@crs.loc.gov, 7-7673