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Marine Corps Advanced Reconnaissance Vehicle (ARV)

What Is the Advanced Reconnaissance Vehicle (ARV)?

According to the Marine Corps, the Advanced Reconnaissance Vehicle (ARV) is planned to be a new armored vehicle to replace the Light Armored Vehicle (LAV):

Since the 1980s, the Light Armored Vehicle (LAV) has supported Marine Air-Ground Task Force missions on the battlefield. While the LAV remains operationally effective, the life cycle of this system is set to expire in the mid-2030s.... The Advanced Reconnaissance Vehicle (ARV) will be highly mobile, networked, transportable, protected, and lethal. The capability will provide, sensors, communication systems and lethality options to overmatch threats that have historically been addressed with more heavily armored systems.

ARV Desired Operational Capabilities

A Marine Corps May 2019 briefing describes some of the ARV's desired operational capabilities as

- an automatic medium-caliber cannon;
- anti-armor capability to defeat close-in heavy armor threats;
- precision-guided munitions (PGMs) to defeat threats beyond the engagement range of threat systems;
- unmanned systems swarm capability to provide persistent, multifunction munitions;
- advanced, networked, multifunctional electronic warfare (EW) capabilities;
- a modern command-and-control suite and a full range of sensors;
- organic unmanned aerial and ground systems (UAS/UGS) that can be deployed from the ARV;
- active and passive vehicle protection; and
- robust cross-country/on-road mobility performance with *shore-to-shore* water mobility.

ARV in Marine Corps Force Structure

The ARV was originally intended to be the primary combat system in Light Armored Reconnaissance (LAR) Battalions. The LAR Battalion's mission is to conduct mounted and dismounted reconnaissance, surveillance, and security operations. LAR Battalions are also expected to conduct offensive and defensive missions and conduct deception operations and raids to create decisive conditions for the Marine Division and the supported unit commander.

Program Status

The Marines plan for three ARV variants. The first variant is the Command, Control, Communications and Computers/Unmanned Aircraft Systems (C4/UAS) version. The second variant is the 30 mm auto-cannon version (ARV-30), and the final variant is the ARV Logistics (ARV-LOG) version. Reportedly, on July 16, 2021, the Marines selected Textron Systems and General Dynamics Land Systems (GDLS) to build ARV prototypes with delivery expected in the first quarter of FY2023 and evaluation concluding in the third quarter FY2023. Textron reportedly delivered its ARV prototypes, known as the "Cottonmouth," to the Marine Corps' Nevada Automotive Test Center on December 1, 2022. General Dynamics reportedly delivered its ARV prototypes to the Marines on December 23, 2022. The delivery of these two prototypes marked the beginning of the formal government evaluation process.

ARV Prototype Evaluation

In February 2023, the Marine Corps reportedly began evaluation of three ARV prototypes. In addition to Textron and GDLS prototypes, BAE systems—the Amphibious Combat Vehicle's (ACV) manufacturer—provided a third prototype (based on a modified ACV) for evaluation. The prototype evaluation reportedly was to focus on the ARV's ability to navigate "mission-representative terrain" in addition to its C4 and UAS capabilities.

ARV Prototype Contracts Awarded

On March 6, 2024, the Marines selected GDLS and Textron to design, develop, and manufacture an ARV-30 prototype vehicle. Reportedly, the prototypes were to be delivered in FY2025, with procurement planned to begin in FY2028.

Figure 1. Textron Cottonmouth ARV Prototype



Source: Defense Daily, "GD Submits Prototype Proposal for Marine Corps ARV, SAIC Is Out," May 6, 2021.

Figure 2. GDLS ARV Prototype

Source: Seapower, “General Dynamics Land Systems Delivers Advanced Reconnaissance Vehicle Prototype to U.S. Marine Corps,” January 5, 2023.

ARV Request for Information

In July 2024, the Marines reportedly issued a request for information to industry to conduct market research for the ARV “ahead of an upcoming engineering and manufacturing development (EMD) competition.” The Marines reportedly planned to “release a request for proposals in the second quarter of FY2025 and award an EMD contract in the second quarter of FY2026.”

Plans for ARV Advancement to the Engineering and Manufacturing Development Phase

According to FY2026 Navy budget documents, the Marine Corps is requesting \$240 million in Research, Development, Test, and Evaluation (RDT&E) funding to transition into the ARV EMD phase, complete ARV-30 competitive prototyping efforts, and award EMD contracts. The FY2026 budget documents further note the ARV program is planned to advance to the EMD phase with GDLS and Textron designing and manufacturing six ARV-C4/UAS variants, six ARV-30 variants, and four ARV-LOG variants, for a total of 16 production representative test vehicles (PRTVs) per vendor. Reportedly, a down select is planned “to occur after each vendor builds 16 prototypes and the government completes evaluation of the solutions, resulting in a production award to one vendor.”

The ARV and the Marine Corps Force Design Initiative

In March 2020, the Marines undertook a major force design initiative planned to occur over the next 10 years. The Marine Corps intended to redesign the force for naval expeditionary warfare and to better align itself with the National Defense Strategy. The March 2020 force design initiative plan raises questions that some have about the role or even the desirability of the ARV in future force design. According to then-Commandant of the Marine Corps, General David Berger,

While I have repeatedly stated that all-domain reconnaissance and counter-reconnaissance will be a critical element of any future contingency, I remain unconvinced that additional wheeled, manned armored ground reconnaissance units are the best and only answer – especially in the Indo-Pacific region. We need to see more evidence

during Phase III to support this conclusion before engaging in an expansion of our existing capacity, or committing billions of dollars in procurement funds towards the acquisition of an Advanced Reconnaissance Vehicle (ARV) (see page 10).

In the Marines’ February 2021 Force Design Update, the Commandant further noted,

The 12 Light Armored Reconnaissance (LAR) Companies identified in the initial Force Design Report must be re-evaluated in light of the emerging concept of multi-domain mobile reconnaissance. This may affect the overall requirement for armored land mobility in the form of the Advanced Reconnaissance Vehicle (ARV) (see pages 5-6).

In the Marines’ May 2022 Force Design Update, the Commandant directed the Marines to

[r]eview and validate all assumptions regarding programmed or potential future capabilities, such as the Amphibious Combat Vehicle (ACV)-30 and Advanced Reconnaissance Vehicle (ARV) (see page 9).

According to the Marines’ 2024 *Force Design: A Snapshot*, the ARV is planned to be part of Mobile Reconnaissance Battalions, which seems to indicate that Marine Corps leadership has resolved previous ARV-related concerns and the ARV is intended to be part of future Marine Corps force structure.

Potential Considerations for Congress

Oversight questions Congress could consider include the following:

- By variant, how many ARVs are planned to be procured for each Mobile Reconnaissance Battalion? Will ARVs also be acquired for other Marine Corps units and, if so, how many are to be acquired?
- What are the ARV’s amphibious capabilities? Original operational capabilities requirements cite “shore-to-shore water mobility.” What are the ARV’s operational shore-to-shore water mobility characteristics?
- In order to integrate with regional joint forces, is the ARV Command, Control, Communications and Computers/Unmanned Aircraft Systems (C4/UAS) variant interoperable with other service’s C4 systems?

For additional information on the Marine Corps Force Design Initiative, see CRS Report R47614, *U.S. Marine Corps Force Design 2030 Initiative: Background and Issues for Congress*, by Andrew Feickert.

For additional information on the Marine’s Amphibious Combat Vehicle (ACV), see CRS In Focus IF11755, *The Marine Corps’ Amphibious Combat Vehicle (ACV)*, by Andrew Feickert.

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