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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) aims to be a new armored vehicle family to replace the Light Armored Vehicle (LAV) (**Figure 1**):

> 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) [the LAV's replacement] 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. The ARV will be an advanced combat vehicle system, capable of fighting for information that balances competing capability demands to sense, shoot, move, communicate and remain transportable as part of the naval expeditionary force.

Figure 1. U.S. Marine Corps Light Armored Vehicle (LAV)

Source: https://www.marines.mil/News/News-Display/Article/1817404/marine-corps-plans-to-replace-lav-with-new-transformational-arv/, accessed May 5, 2021.

ARV Desired Operational Capabilities

According to a Marine Corps May 2019 briefing to industry, some of the ARV's desired operational capabilities include

- an automatic medium-caliber cannon capable of delivering anti-personnel, anti-materiel, and anti-armor munitions on the move (such as the Army's XM813 30 mm weapon system);
- 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 to enhance and extend reconnaissance and surveillance ranges;
- organic unmanned aerial and ground systems (UAS/UGS) that can be deployed from the ARV;
- active and passive vehicle protection capabilities to sense, orient, classify, track, and defeat incoming rocket-propelled grenades (RPGs), anti-tank guided missiles (ATGMs), and PGM threats with hard-and soft-kill capability;
- robust cross-country/on-road mobility performance with *shore-to-shore* water mobility (*shore-to-shore* mobility is the movement of personnel and materiel directly from a shore staging area to the land objective without further transfers between ships prior to an amphibious assault); and
- for transport purposes, size and weight similar to the LAV.

ARV in Marine Corps Force Structure

The ARV is to be the primary combat system in Light Armored Reconnaissance (LAR) Battalions. The mission of the LAR Battalion is to conduct mounted (vehicle-borne) and dismounted (on foot):

- Reconnaissance, surveillance, and security operations in support of maneuver.
- Offensive and defensive actions, deception, and raids to create decisive conditions for the Marine Division and the supported unit commander.

Program Status

The Marines plan for a number of ARV variants—referred to as a "family of vehicles." The first described variant is to be the Command, Control, Communications and Computers/Unmanned Aircraft Systems (C4/UAS) version. Reportedly, the Marine Corps plans to make up to three

awards for ARV prototypes. The vendors selected would then deliver prototypes for testing and evaluation. The Marines plan to choose up to two vendors to continue into a competitive Engineering and Manufacturing Development (EMD) phase in FY2024. If prototype testing proves successful, the Marines Corps could then initiate a production effort potentially worth an estimated $1.8 billion to $6.8 billion over five years. Reportedly, Textron **(Figure 2)** and General Dynamics **(Figure 3)** have already submitted prototype ARVs to the Marines for testing and evaluation.

Figure 2. Notional Textron ARV

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

Figure 3. Notional General Dynamics ARV

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

The ARV and the Marine Corps 2030 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 intends to redesign the force for naval expeditionary warfare and to better align itself with the National Defense Strategy, in particular, its focus on strategically competing with China and Russia. In February 2021, the Marines updated the Secretary of Defense on the progress on force design initiatives.

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 the 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 Marine's February 2021 force design update to the Secretary of Defense, 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)

These two statements could arguably raise questions regarding the future of the ongoing ARV program.

FY2022 ARV Budget Request

The Navy is requesting $48.563 million in Research, Development, Test and Evaluation (RDT&E) funding in FY2022 for, among other things, industry build of competitive prototype vehicles and the initiation of competitive prototype vehicle test planning.

Potential Questions for Congress

Potential questions arising from policy issues concerning the ARV may include but are not limited to the following:

- In view of the Commandant's statements in 2020 and 2021 regarding the need for the ARV, what is the Marine Corps' current official position on the operational requirement to procure the ARV?
- If the requirement for the service's LAR companies and the ARV "must be re-evaluated" as stated in the February 2021 update, what are the Marines' plans to reevaluate this requirement? If there is to be a reevaluation, when will this be communicated to Congress?
- Pending a reevaluation of the service's LAR companies and the ARV, should the ongoing ARV program be suspended so that additional funds are not expended on a program that potentially could be cancelled?

For additional information on the Marine Corps 2030 Force Design Initiative, see CRS Insight IN11281, *New U.S. Marine Corps Force Design Initiatives*, by Andrew Feickert.

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