

PEO LS PROGRAMS

Program Executive Officer Land Systems (PEO LS) consists of six program offices overseeing 22 programs. The following sections discuss the ATIP for each of the pertinent PEO LS programs. Each selected program has a dedicated section that is described in the three parts listed below. The goal is to use all available S&T venues to leverage resources for PEO LS programs to close warfighter gaps and solve program technology requirements.

Part One (Figure 8-1) describes the program's background, status, and Top Technical Issues.

Section 8.2 PEO LS Program

AMPHIBIOUS COMBAT VEHICLE PHASE 1 INCREMENT 1

Program Background

The Amphibious Combat Vehicle (ACV 1.1) is an armored personnel carrier that is balanced between performance, protection, and payload for employment within the Ground Combat Element (GCE) and throughout the range of military operations. To include a swim capability. ACV 1.1 leverages and continues the work that was previously accomplished under the Marine Personnel Carrier (MPC) program. Operationally, the ACV 1.1 will be employed in such a manner that allows combat units to continue the inland fight toward the objective after an initial beachhead has been established. ACVs will provide a very robust combat capability, with features including Mine-Resistant Ambush Protected (MRAP)-level survivability, amphibious ability to negotiate two-foot significant wave height, and four-foot plunging surf.

Program Status

Two vendors (SAIC and BAE) were selected to compete for the program and were awarded EMD contracts after Milestone B in November 2015. The Marine Corps expects to start developmental testing in FY 2017 and down select to a single vendor in FY 2018 at Milestone C. The ACV 1.1 is expected to achieve Initial Operational Capability (IOC) in FY 2020.

ACV 1.1's Top Technical Issues

1. Survivability

Technologies that provide lightweight survivability solutions with specific focus on blast and direct fire protection are needed for the ACV.

2. Weight

Technologies that provide lightweight solutions for vehicle materials and components are needed for the ACV to achieve future survivability, lethality, and mobility upgrades.

3. Crew Visibility

The ACV crew must maintain direct sensory knowledge of their surroundings to safely and effectively employ the system. This requirement includes, but is not limited to, fully blacked out land/water operations, station keeping, obstacle detection (including near-surface obstacles), and operation in urban environments. Technologies that provide the necessary situational awareness for the crew are critical to the execution of the ACV mission.

Figure 8-1. Part One

Part Two (Figure 8-2) describes the program's quad chart, which addresses the program's fundamental information and characteristics, i.e., specific information, including a detailed program description, status, and schedule.

Part Three (Figure 8-3) graphically addresses the Top Technical Issues for each program.

Each technical issues and related S&T projects are aligned to the current program schedule. It is divided into the following four sections:

Row one identifies the program's major milestones.

Row two display's S&T initiatives that are targeted to solve the technology issue.

The dark blue diamond with a yellow number in the center depicts the expected Technology Readiness Levels (TRL) at the beginning and end of projects.

TRLs are used to measure the maturity level of the S&T activities and initiatives.

- TRL 1 - Basic principles observed and reported.
- TRL 2 - Technology concepts or applications (or both) formulated.
- TRL 3 - Analytical and experimental critical function or characteristic proof-of-concept.

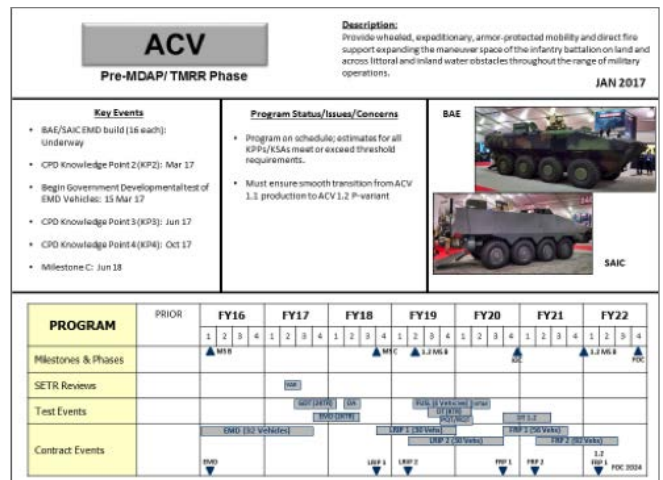


Figure 8-2. Part Two



ACV 1.1 Technical Issue #1 Survivability

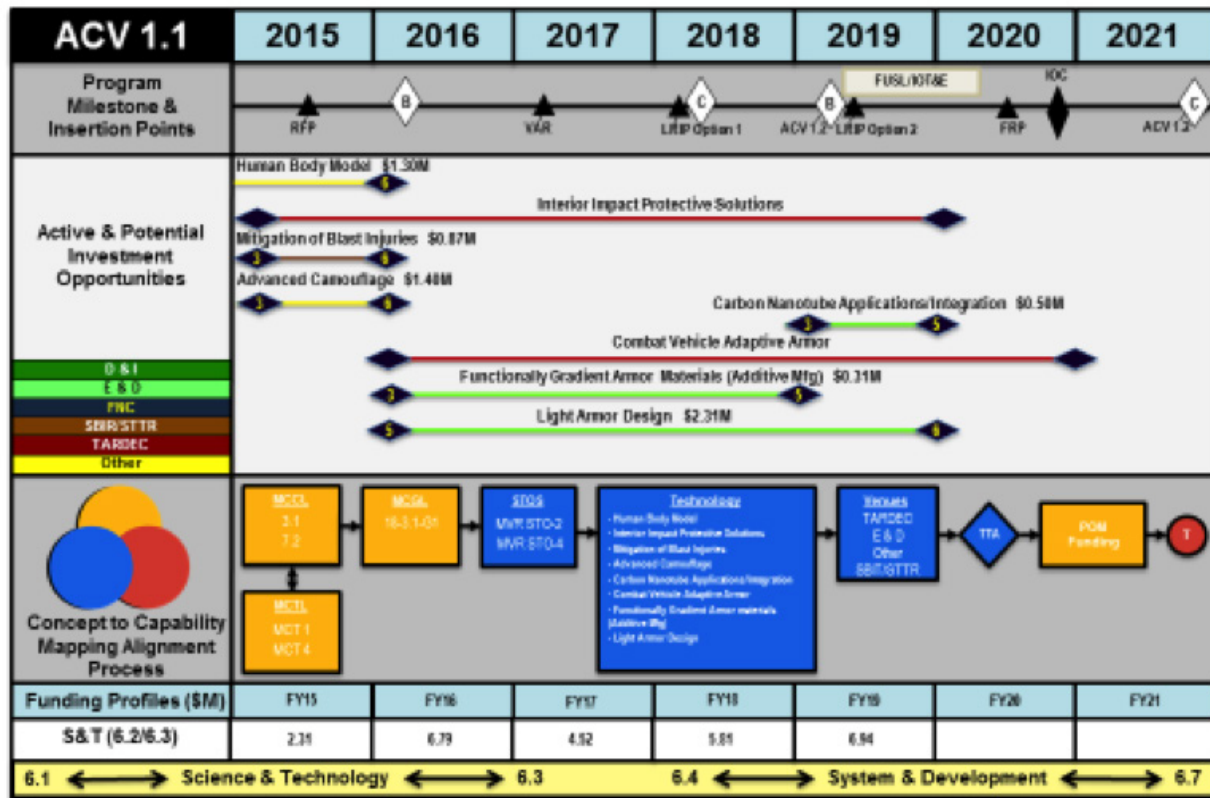


Figure 8-3. Part Three

- TRL 4 - Component or breadboard validation in a laboratory environment.
- TRL 5 - Component or breadboard validation in a relevant environment.
- TRL 6 - System/subsystem model or prototype demonstration in a relevant environment.
- TRL 7 - System prototype demonstration in an operational environment.

The color key on the far left side of the chart identifies the seven different types of S&T venues.

Discovery and Invention (D&I) programs consist of basic and early applied research.

Exploitation and Development (E&D) focuses on incorporating research into systems in

preparation for inclusion into acquisition programs.

Future Naval Capabilities (FNC) provide the best technology solutions to formally defined capability gaps and usually leverage past D&I and E&D successes.

SBIR/STTR are composed of programs that are focused on small business innovation.

Tank Automotive Research, Development and Engineering Center (TARDEC), located in Warren, Michigan, is the U.S. Armed Forces' research and development facility for advanced technology in ground systems. It is part of the Research, Development and Engineering Command (RDECOM), a major subordinate command of the United States Army Materiel Command. Current technology focus areas

include Ground Vehicle Power and Mobility (GVPM), Ground System Survivability, and Force Protection Technology, among others.

Other is a variety of other investment types, including projects involving the Office of the Secretary of Defense; initiatives that are sponsored by the program office, such as Phase “A” studies and congressional “plus ups”; and all those not otherwise covered. See Section 8 for a detailed list of applicable S&T venues.

Row three traces the issue from the originating Marine Corps Capabilities List (MCCL), through the identified gap via the Marine Corps Gap List (MCGL), to the Science and Technology Objectives (STOs) that are identified in the Marine Corps S&T Strategic Plan, and other S&T venues that address the technical issue to illustrate the transition of technology to the Program of Record.

The mapping alignment process traces the technology issue/S&T initiative from the required capability to the transitioned technology. Using ACV Technical Issue #1, Survivability as an example, MCCL 3.1 (Maneuver Forces) identifies the capability that is associated with the technical issue. Applicable tasks identified from the Marine Corps Task List (MCTL). MVR STO-2 addresses the Maneuver (MVR) STO addressing the functional area of ground vehicle mobility. The issues are then traced through potential technologies and venues to the funded transition of that advanced technology capability. This is done for each program’s top technical issue to map from the concept to the capability, identifying how to solve this technical problem, and how it can transition into a program of record.

The bottom three rows describe the funding profile associated with the S&T initiatives for each listed year.

In summary, this edition of the Advanced Technology Investment Plan captures the active S&T initiatives that are currently being pursued

by PEO LS and are aligned to high-priority technical issues and capability gaps in order to “Focus the Future Faster” by delivering gap-closing capabilities to the warfighter.