ASSAULT AMPHIBIOUS VEHICLE (AAV7A1 RAM/RS)

Program Description

Initially fielded in 1972 and subsequently upgraded to the current "A1" configuration in the late 1980s, the Assault Amphibious Vehicle (AAV) remains the primary general-support armored personnel carrier for Marine infantry. The AAV is scheduled to remain in service until at least 2030, requiring upgrades as a bridge to the arrival of the Amphibious Combat Vehicle.

AAV variants consist of the standard AAVP7A1 RAM/RS and two supporting mission-role variants: AAVC7A1 RAM/RS Command and AAVR7A1 RAM/RS Recovery. The AAV7A1 RAM/RS vehicles provide ship-to-shore-to-objective mobility as well as direct fire-support with organic weapons.

Upgrades will improve force protection and platform survivability by integrating mature technologies into the existing AAV. These upgrades include belly and sponson armor, blast-mitigating seats, and spall liners, and they may also include fuel tank protection, deck liners, and automotive and suspension upgrades. These upgrades are currently slated for approximately 392 AAVP7A1 RAM/RS, as well as potential select upgrades to the Command and Recovery variants.

Program Status

The AAV Upgrade Program is expected to enter the acquisition cycle at Milestone B during FY 2014 and begin the engineering, manufacturing, and development phase. Developmental testing is planned for late FY 2015. Milestone C, authorizing entrance into the production and deployment phase, is scheduled for late FY 2016, with an Initial Operating Capability slated for late FY 2018.

AAV'S Top Three Program Technology Issues:

1. Survivability

Technologies that provide advances in ceramic and layered armor to improve survivability and reduce weight are needed for the AAV upgrade and will likely include a combined internal and external belly armor solution. Additionally, advances in blast seats and spall liners are also required for the AAV upgrade.

2. Weight/Buoyancy Management

Enhancing survivability will likely add weight to the AAV platform. There exists a critical need for advances in technology that will provide alternative lightweight, economical materials, along with design improvements to increase and protect buoyancy.

3. Sustainment/In-Service Engineering

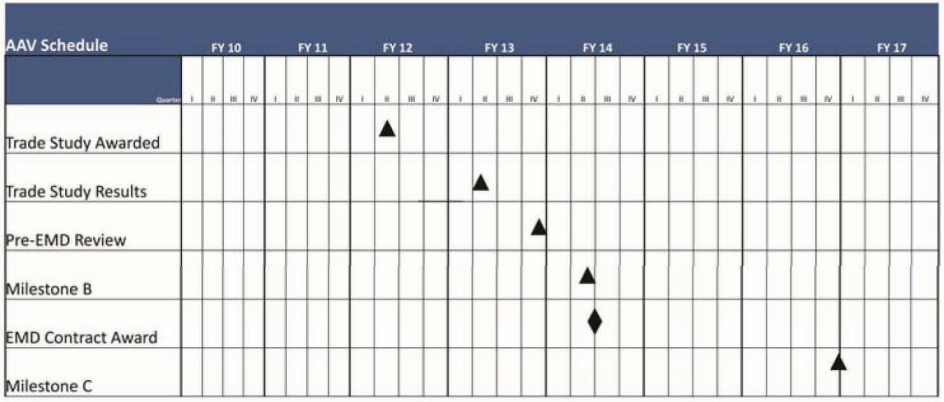
The AAV is a 40-year old platform that will remain in service for years to come. The day-to-day logistics, maintenance and technical challenges of managing such a dated platform require advances in technology that will increase reliability and reduce operation and maintenance support costs.

A U.S. Sailor assigned to the amphibious assault ship guides amphibious assault vehicles into the well deck of the ship while under way for local operations in the Pacific Ocean. Photo by Senior Chief Mass Communication Specialist Joe Kane.

Amphibious assault vehicle traversing in the water.

Amphibious Assault Vehicle carrying Marines to shore.

Assault Amphibious Vehicle (AAV)



Program Description

• AAV Upgrade AAO provides 4 Infantry Battalions lift capacity to the MAGTF

• The AAV Upgrade is to be a **bridge capability** to ACV. *Focus* - restore operational relevance to the AAV by updating outdated protection attributes

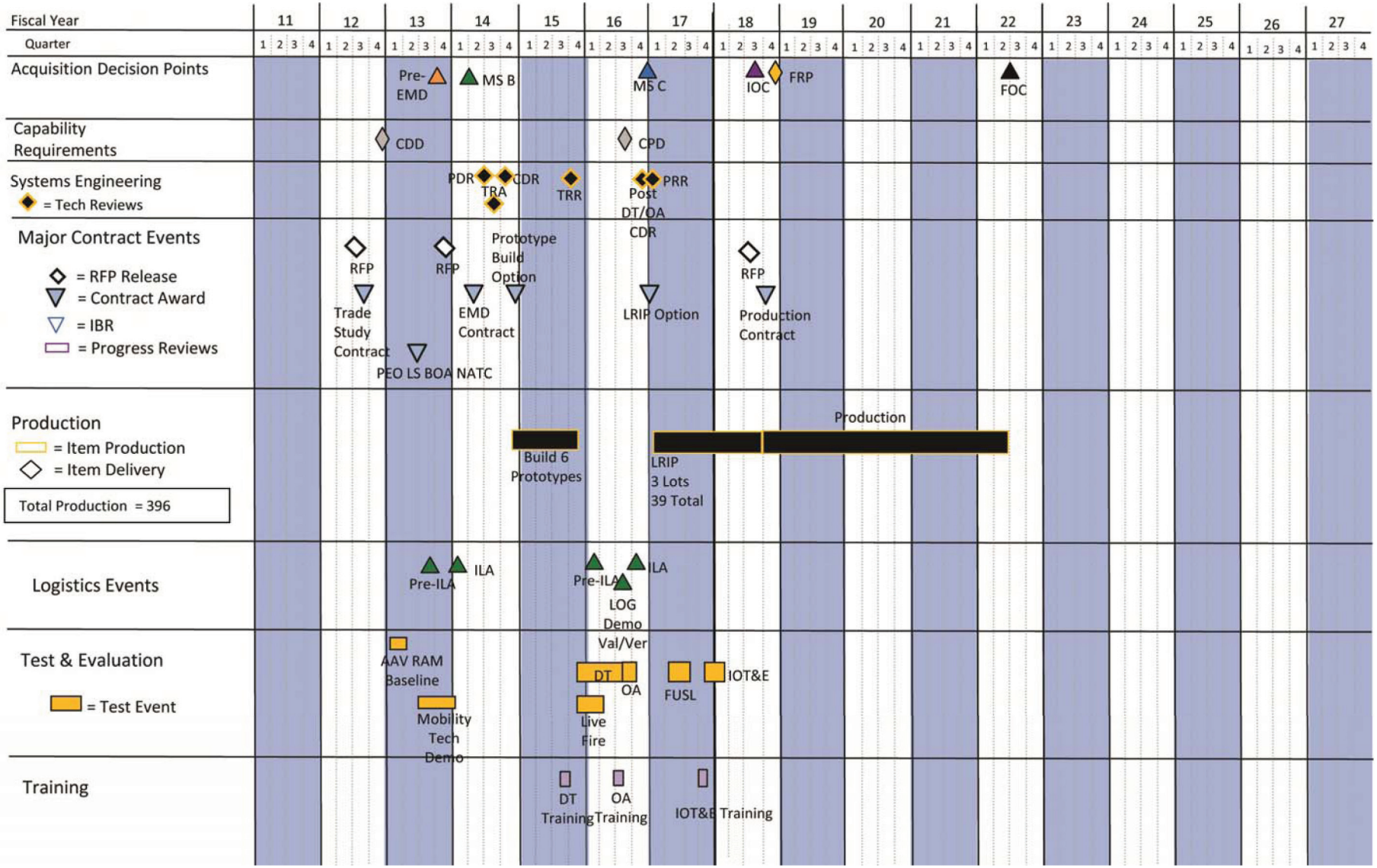
Mission: General Support Lift / Amphibious Mobility
Dimensions: H: 130 in
W: 130 in
L: 321 in
Wt: 46,330 lbs (curb wt)
Weapons: HMG
Payload: 21 Infantry Marines + 3 Marine crewmen
Range: 200 miles
Speed: Effective with M1A1 off-road / 6 knots in water

Program Status

Acquisition Status: Pre MS-B
Acquisition Objective: 392
IOC/FOC: FY17/FY23

Assault Amphibious Vehicle (AAV)

Updated 15 FEB 2013



AAV Technical Issue #1 Survivability

AAV	2012	2013	2014	2015	2016	2017	2018

Program Milestones/ Insertion Points

Trade Study Awarded; Pre EMD Review; MS-B (B); Design/Build 6; * AAV Upgrade *; MS C (C); LRIP Option; IOC; FRP

Active and Potential Investment Opportunities

- (2)Desktop Software FOA of Effects of Blast & Ballistic Impact (PM AAA SBIR I) ($0.30M) — 6
- Modular Lightweight Armor System (PM AAA SBIR II) ($0.83M) — 6
- DARPA AVM Program ($293.00M) — 6
- Self Sealing Fuel Tanks Swampworks ($1.00M) — 5, 7 — T PM M&HTV
- Energy Absorbing Structures for Blast Mitigation ($0.99M) — 5 — T PM AAA
- (3)Active Laser Protection (PM AAA SBIR I) ($1.20M) — 6
- Modular Anthropomorphic Test Device (ATD) (PM AAA SBIR I) ($1.08M) — 6
- Advanced Transmission Technology ($3.14M) — 4, 6 — T PM AAA
- Modular LW Ext. Fuel Tank Sys. (PM AAA SBIR II) ($1.03M) — 6
- AAV Emergency Egress USON ($16.00M)

D&I | E&D | FNC | SBIR/ STTR | Other | TARDEC

Concept to Capability Issue Mapping Alignment Process

MCCL 3.1 7.2 → MCGL 15-7.2-G1 → STO'S MVR STO-2, MVR STO-4, MVR STO-5 → Technology (-Desktop Software FOA of Effects of Blast & Ballistic Impact; -Modular Lightweight \ Armor System; -DARPA AVM Program; -Self Sealing Fuel Tanks System Swampworks; - EA Structures for Blast Mitg.; -Active Laser Protection; - Modular ATD) → Venues (D&I, E&D, SBIR, Other) → TTA → POM Funding → T

MCTL MCT 1, MCT 6

Funding Profiles ($M)	FY 12	FY 13	FY 14	FY15	FY 16	FY 17	FY 18
S&T (6.2 / 6.3)	64.68	105.30	37.53	35.50			

6.1 ⟷ Science & Technology ⟷ 6.3 6.4 ⟷ System Development ⟷ 6.7

AAV Technical Issue #2 Weight/Buoyancy Management

AAV	2012	2013	2014	2015	2016	2017	2018

Program Milestones/ Insertion Points

Trade Study Awarded; Pre EMD Review; B (MS-B); Design/Build 6; * AAV Upgrade *; C (MS C); LRIP Option; IOC; FRP

Active and Potential Investment Opportunities

(2)Modular Lightweight Armor System (PM AAA SBIR II) ($1.51M) — 6

Modular LW Ext. Fuel Tank Sys. (PM AAA SBIR II) ($1.03M) — 6

High Strength-High Ductility Nano Composites ($1.97M) — 4 – 6

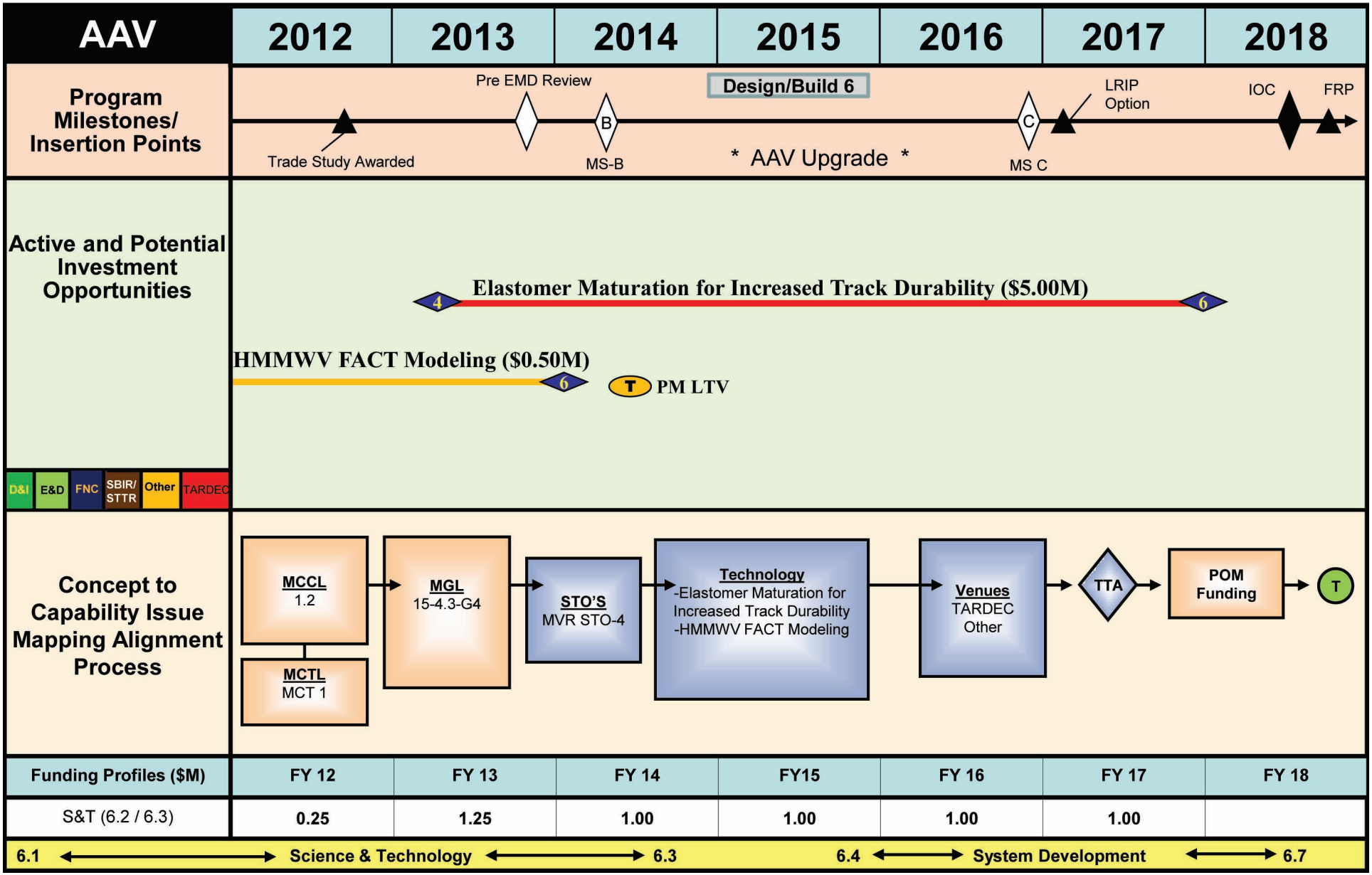
D&I | E&D | FNC | SBIR/ STTR | Other | TARDEC

Concept to Capability Issue Mapping Alignment Process

MCCL 3.1 → MCGL 15-6.1.1-G3 → STO'S MVR STO-4, MVR STO-5 → Technology -Modular Lightweight Armor System -Modular LW Ext. Fuel Tanks -High Strength-High Ductility Nano Composites → Venues SBIR E&D → TTA → POM Funding → T

MCTL MCT 1, MCT 3

Funding Profiles ($M)	FY 12	FY 13	FY 14	FY15	FY 16	FY 17	FY 18
S&T (6.2 / 6.3)	1.00	1.56	1.01	0.10			

6.1 ⟷ Science & Technology ⟷ 6.3 6.4 ⟷ System Development ⟷ 6.7

AAV Technical Issue # 3 Sustainment/In-Service Engineering