

Section 7.11 PEO LS Program

MINE-RESISTANT AMBUSH PROTECTED FAMILY OF VEHICLES



Program Background

The USMC Mine-Resistant Ambush Protected (MRAP) FoV consists of multiple variants that are designed to reduce casualties and increase the survivability of personnel subjected to mine explosions, IED detonations, and small arms fire. The USMC MRAP FoV consists of the MRAP All-Terrain Vehicle (M-ATV), the Category I and II Cougar variants, and the Category III Buffalo. The MRAP vehicle was designed to meet requirements identified during Operation Iraqi Freedom and Operation Enduring Freedom, with a focus on continual improvement of vehicle and warfighter survivability. The USMC will retain 2,510 MRAP vehicles, comprised of M-ATVs, Cougars, and Buffalos, to satisfy the enduring requirement established by the Marine Corps Requirements Oversight Council (MROC).

The M-ATV provides better overall mobility characteristics than other MRAP variants while still providing MRAP-level survivability. It supports mounted patrols, reconnaissance, security, convoy protection, casualty evacuation, data interchange, and command and control functions. The addition of the Underbody Improvement Kit-2 (UIK2) further enhances the platform's protection against underbody threats; this kit combines armor and interior occupant upgrades as well as automotive enhancements to increase survivability while maintaining platform safety and off-road capability.

Both Cougar variants support small unit combat operations in complex and highly restricted rural, mountainous, and urban terrains. They consist of Category I (4X4 variant), which is capable of transporting five crew members and one gunner; and Category II (6X6), which is capable of transporting

nine crew members and one gunner. A third, low-density Cougar variant is an ambulance that provides the ability to transport and conduct emergency care for multiple acute battlefield casualties in an armored ambulance while in close proximity to enemy troops. The Cougar ambulance is based on the CAT II and can transport up to four wounded patients and two patients carried on litters as well as the three crew members.

The USMC CAT III MK2A2 Buffalo is a six-wheel, six-passenger, all-wheel drive vehicle that was developed to conduct route clearance operations. The Buffalo is a blast-protected vehicle that operates in explosive hazardous environments and provides route clearance capability and personnel protection against IEDs and anti-personnel and anti-tank mines. The Buffalo has a 30-ft. articulating arm, with an attached claw and air digger, to remotely investigate suspected IED sites. The claw, combined with the air digger and boom-mounted video camera, is utilized to find and uncover concealed IEDs and enables the crew to confirm or deny and classify the explosive hazard with precision and operator standoff protection.

Program Status

The MRAP FoV is currently fielded to all three Marine Expeditionary Forces. A total of 2,017 of the 2,510 enduring requirement vehicles are scheduled to receive a maintenance reset at USMC and Army depots and a commercial repair facility through calendar year 2017. Once the USMC laydown is validated, reset vehicles will be reissued to meet mission requirements.

MRAP FoV's Top Technical Issues:

1. Transparent Armor/Ballistic Glass

Advancements are needed in the area of transparent armor. The current MRAP FoV transparent armor meets the requirements for ballistic performance;

however, significant logistics and financial burdens are realized as a result of glass delamination. Delamination reduces visibility and makes it more difficult for the crew members to operate safely and view the surroundings effectively. The PMO has experienced a 100% replacement rate within three years. Finding a solution that retains the armor's ballistic performance and maintains visibility would provide the USMC significant cost savings, reduce logistics burdens, and continue to promote safety benefits.

2. Performance and Safety Improvements

Continued investments in technologies to improve the performance and safety of USMC MRAP vehicles are required. Such investments could include stopping performance (enhanced braking) and survivability improvements via post-production vehicle improvements and add-on kits to protect against explosively-formed penetrators. Improved safety features such as Electronic Stability Control can reduce the number of rollovers and significantly increase the safety of operation by eliminating or reducing rollovers.

3. C4I Interoperability (VICTORY)

VICTORY stands for "Vehicular Integration of C4ISR/EW Interoperability." VICTORY is a set of standards which will enable several of the vehicle components to be interoperable. The U.S. Army and the USMC are both pursuing VICTORY capability for the M-ATV MRAP variant. Each service is customizing their VICTORY system to be oriented toward the GFE contained within the vehicle. VICTORY can assist with diagnostics, enable relocation of electronic components to outside the crew area, and reduce SWAP-C (size, weight and power, cost) requirements by enabling common standards that will allow interoperability and multi-functionality of components.

ACAT III / SUSTAINMENT

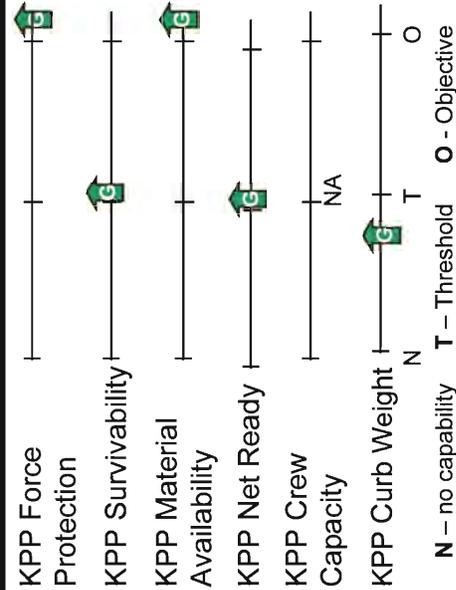
Buffalo

Description: The Buffalo CAT III MRAP vehicle is a heavy-category vehicle that provides route clearance capability and personnel protection against Anti-Personnel (AP) and Anti-Tank (AT) mines.

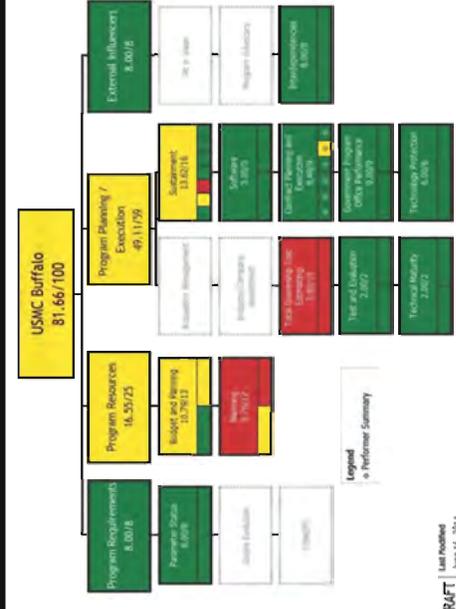
FOC = December 2009

AAO = 38 (ER)
IOC = October 2007

15 Dec 2014



Contract Data: M67854-07-D-5006
Contractor: General Dynamics Land Systems (previously Force Protection (FPII))
Production/Fielding Complete: 2010
Next Contract: N/A
 DCMA
 CPI
 EAC
 SPI
Issues: None



PROGRAM	FY12			FY13			FY14			FY15			FY16			FY17			FY18			FY19								
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4						
Milestones & Phases																														
SETR Reviews																														
Test Events	ECP 51 testing 2Q FY12			Rear Door Assist Testing 1Q FY13			Transparent Armor / 3rd Plane of Egress environmental testing 1Q FY14			Rear Door Assist Testing 1Q FY13			4X Testing Conducted 4Q FY13			PM AMS XMCO, Inc. Block II ETM Awarded 4Q FY13			ManTech CLSS Awarded 2Q FY12			Base Awarded 3Q FY12			PM AMS ManTech CLSS Option Year 2 Awarded 1Q FY15			PM AMS ManTech CLSS Option Year 2 Awarded 1Q FY15		
Contract Events																														



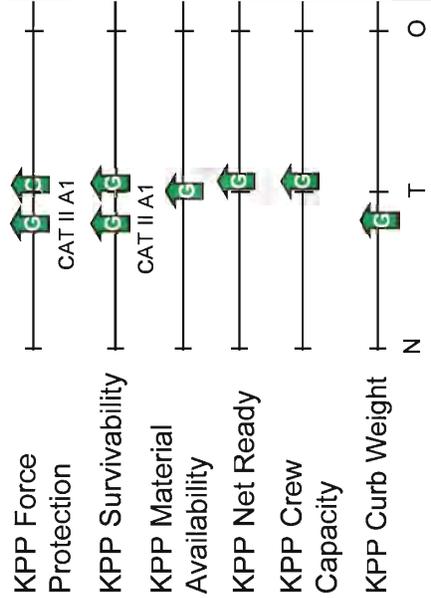
**ACAT IV (M) /
PROCUREMENT**

Cougar Block I Mod
Seat Survivability Upgrade & Egress

Description: Seat Survivability Upgrade (SSU): Will increase force protection of the CAT II A1 occupants and will meet the requirement of the Capability Production Document (CPD) dated 7 July 2009 once the SSU kit(s) and associated reset reconfigurations are completed. **Egress:** Will satisfy two UUNS requirements to mitigate hazards associated with egress from overturned MRAP vehicles.

MS C = 9 February 2007 AAO = SSU: 303 / Egress: 1,383
IOC = FOC =

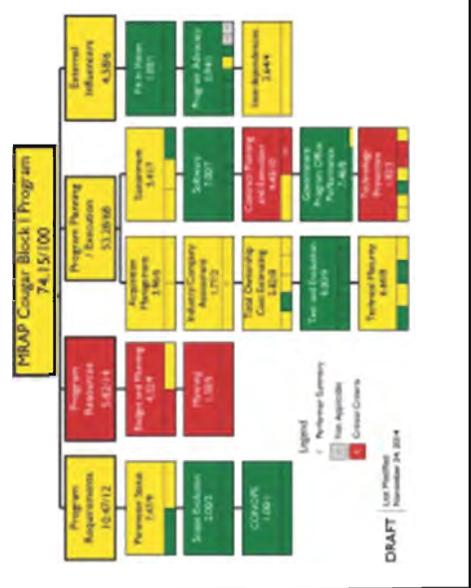
15 Dec 2014



Contract Data - M67854-14-C-5500/5501
Contractor General Dynamics Land Systems (Force Protection formerly FPII)
Production/Fielding Completed 20 April 2017

Next Contract:
DCMA
CPI SPI
EAC

Issues: None



PROGRAM (More In-depth Schedule Follows)	FY12				FY13				FY14				FY15				FY16				FY17				FY18				FY19			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Milestones & Phases	SSU and Egress Full Rate Production and Production Decision																															
SETR Reviews	Follow-on Egress CDR																															
Test Events	SSU PDR - 26 Mar SSU CDR - 27 May Egress CDR Egress User Eval Egress A1 Egress B1 Egress B2 Saber TOW Slug fire																															
Contract Events	SSU Award - 30 Jan Egress Award - 28 Mar Additional Egress - 29 Sept																															



ACAT 1D / SUSTAINMENT

M-ATV

Description: The M-ATV provides protected ground mobility capable of operating in a threat environment involving ambushes employing the use of mines, Improvised Explosive Devices (IEDs), Rocket Propelled Grenades (RPGs), EFPs, and Small Arms Fire (SAF). **15 Dec 2014**

AAO = 704 (ER)
IOC = December 2009 **FOC = April 2012**

KPP Force Protection	← G
KPP Survivability	← G
KPP Material Availability	← G
KPP Net Ready	← G
KPP Crew Capacity	← G
KPP Curb Weight	← G

N – no capability T – Threshold O – Objective

Contract Data -
W56HZV09D0111 (MATV TACOM Contract majority of funding belongs to USA)
W56HZV13C0180 (MATV TACOM Contract majority of funding belongs to USA)
Production/Fielding Completed:
NOV2011/FEB2012
Next Contract: NA
Issues: None

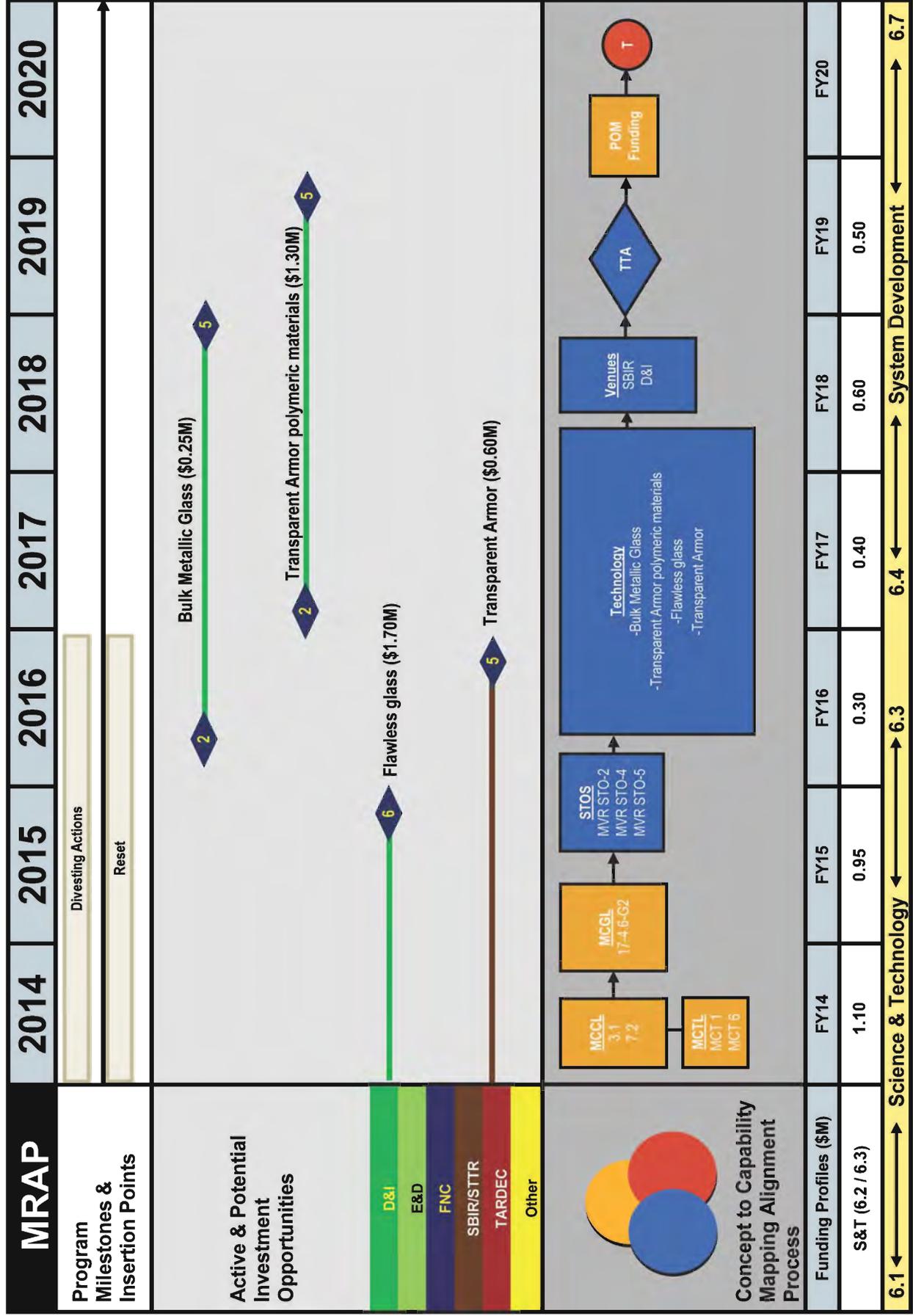
Top Issues

- Material Management for IROAN/Reset
- Fielding to the new MROC requirement
- Orientation of new personnel to Program

PROGRAM	FY12				FY13				FY14				FY15				FY16				FY17				FY18				FY19			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Milestones & Phases																																
SETR Reviews																																
Test Events	OWM Shaker Table 3Q UIK Endurance				Pintle/MACAW 2-4Q 4X Conducted 2Q								OWM FAI 2Q																			
Production/Shipping Events	OWM Full Rate Production 3Q OWM Shipments to MAP 4Q Adj. Pintle Production 2Q																															
Contract Events	OWM funding accepted 4Q																															
	FSR Recompete Contract Award Q1																															

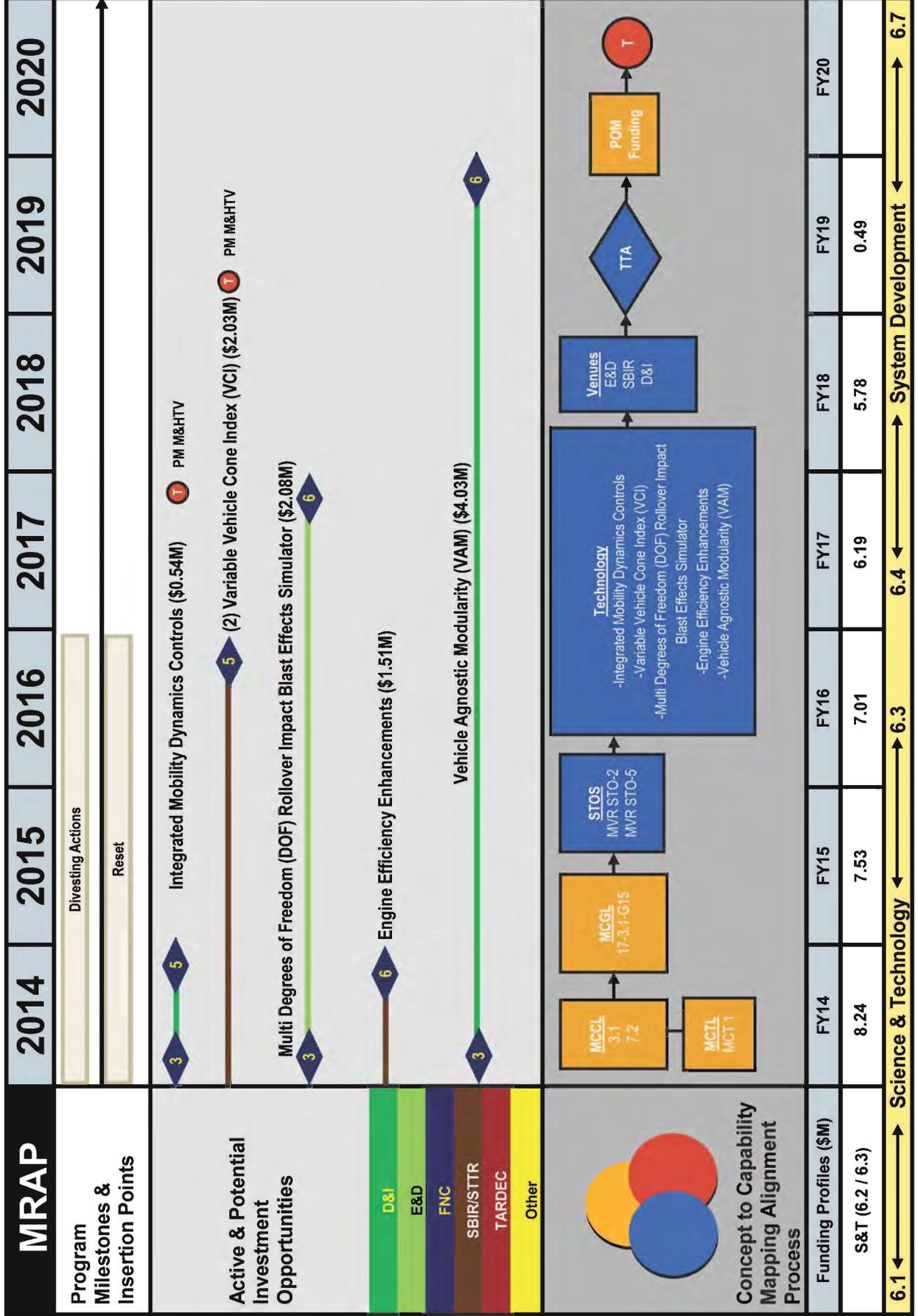


MRAP Technical Issue #1 Transparent Armor/Ballistic Glass





MRAP Technical Issue #2 Performance and Safety Improvements





MRAP Technical Issue #3 C4I Interoperability (VICTORY)

