



U.S. ARMY

# THE FULL SPECTRUM FIGHT DEMANDS A NEW INFANTRY FIGHTING VEHICLE



“ We operate where our enemies, indigenous populations, culture, politics, and religion intersect and where the fog and friction of war persists. The U.S. Army must maintain its core competency of conducting effective combined arms operations in close combat to employ defeat and stability mechanisms against a variety of threats. ”

*Martin Dempsey, Chief of Staff, U.S. Army  
U.S. Army Capstone Concept Forward*

# THE OPERATIONAL ENVIRONMENT

Our national security will continue to be threatened by complex challenges emanating from traditional nation-states, non-state actors, extremist groups and criminal organizations. The most likely 21st century adversary will come from hybrid threats combining conventional, irregular, terrorist and criminal capabilities and tactics. To succeed across a wide range of contingencies the Army must be able to operate in a decentralized manner and deliver a nine Soldier infantry squad to a position of decisive advantage, under protection, in all terrain types. The following examples provide insight into the future of the full spectrum battle:

## **Shah-i-Kot Valley, Afghanistan 2002**

- Rugged terrain and a motivated, capable enemy mean pervasive precision fires alone cannot win
- The first 8 years of fighting in Afghanistan highlighted the need for protected mobility and delivering full infantry squads to positions of decisive advantage

## **Baghdad 2003 - Operation Iraqi Freedom**

- A mix of organized guerilla and conventional attacks
- Rocket propelled grenade, machine gun attacks mixed among the population
- Enemy battle morphed into combinations of terrorist, insurgent, militia and criminal organizations

## **Fallujah 2004**

- Improvised Explosive Devices (IEDs) implanted along predictable paths, allowing enemy to ambush
- Enemies equipped with impressive weaponry intermingled with civilians

## **Northern Israel 2006 - 2nd Lebanon War**

- Non-state actor with nation state military support from Iran launches rocket attacks into Israel. Launch positions protected by hit and run and placement among civilian population
- Terrorism, hybrid guerilla / conventional tactics and IEDs used to confine and ambush Israeli forces



## WHY A NEW INFANTRY FIGHTING VEHICLE

Lessons learned from the operating environment show current force vehicles do not counter current threats, especially Improvised Explosive Devices (IEDs). Modifications to Bradley and Stryker make both platforms more survivable but at the cost of other critical combat requirements like mobility. Mine Resistant Ambush Protected (MRAP) vehicles were introduced to address gaps in underbelly survivability but these vehicles cannot fill the necessary fighting role.

Current fighting vehicles have reached or exceeded the limits of space, weight, power and cooling (SWaP-C). This situation has 1) created capability gaps 2) impacted Warfighter operational effectiveness and systems' reliability and 3) limited or eliminated the ability to integrate new solutions to defeat emerging threats.

No single vehicle provides the combined protection of the MRAP, mobility of the Bradley and operational flexibility of the Stryker; nor do any address capability gaps of MRAP mobility, Bradley internal capacity or Stryker protection. Where the Stryker provides the Army tremendous capabilities- it's basically road-bound carrier with limited firepower for infantry assault.

A nine Soldier configuration provides the exacting and effective team make up necessary for the Infantry to accomplish this mission. Commanders have told us the most effective way to employ their squad is via one vehicle, yet no vehicle today can provide that kind of mobility and protection that Soldiers require and deserve.

A single vehicle that can effectively integrate these capabilities provides more flexibility to Commanders in future, highly dynamic environments, where the threat is very adaptive and the need to rapidly transition from wide area security operations to more intensive combat missions are the norm.

## AT THE CORE OF THE INFANTRY FIGHTING VEHICLE

Given the complexities of operating across the full spectrum of conflict, the combat vehicle of today and tomorrow must be capable of adapting different armor and network communication capabilities as well as being able to provide protected mobility to deliver a full infantry squad to a decisive position on the battlefield and provide defensive overwatch. These concepts are captured within the GCV Infantry Fighting Vehicle Program's drive to achieve key capabilities including:

- **Force Protection -**

A platform that can protect the Infantry Squad and crew against a variety of threat weapon systems in dynamic and changing environments.

- **Versatile and Adaptable Platform -**

A Fighting Vehicle capable of adapting to changing threats over time via modular and open architecture approaches while incorporating growth provisions for future system enhancements.

- **Capacity -**

An Infantry Fighting Vehicle that can carry, deliver, and support a Fully Equipped 9 Soldier Infantry Squad to key positions of advantage in a variety of operational environments.

## GETTING THERE IN SEVEN YEARS

Previous systems like the Bradley and Abrams were developed and evaluated using linear, 20 year plans. The stability of the threat environment then ensured low risk of capabilities becoming outdated before they were fielded. This is not the case today as adversaries adapt old and assimilate new battlefield technologies to create a hybrid threat. The GCV program reduces the developmental timeline and associated risk by:

- Utilizing a two-year Technology Development Phase that lays the program foundation by applying a rigorous systems engineering framework, evaluating alternative system designs, and maturing operational and technical requirements. This phase will support our convergence on an affordable and achievable increment of capability.
- Managing technology risk by focusing industry to maximize the use of mature technologies to drive down development timelines as well as supporting cost containment
- Incorporating use of competition and complete prototypes and associated testing through the development period to assist in driving toward cost and schedule targets while providing greater insight into technology risk and design achievability.



# EVOLUTION OF VEHICLES FOR COMBAT

**1962**



## **M113**

The M113 was a mainstay in the Army's active defense but was only meant to serve as an infantry carrier. It suffered from very limited lethality, protection, speed and mobility.

**1981**



## **Bradley Fighting Vehicle**

The Bradley Infantry Fighting Vehicle was designed to address a specific set of direct fire weapons systems in a predictable environment. Its design accepted top and bottom threat risks. It was not envisioned to generate the power required by today's suite of military systems. It can keep pace with the M1 Abrams tank but it sacrifices internal capacity to the point that it cannot fit an infantry squad.



**1999**

## **Stryker**

Added to the force as an interim family of vehicles. Although the Infantry Carrier variant has significant capability including capacity for the 9-Soldier Infantry Squad and has performed well during recent combat operations, it is not a fighting vehicle and has some limitations in the areas of protection, mobility, lethality, and growth making it not well suited across the full spectrum of conflict.



**2008**

## **MRAP**

Truck-based personnel carrier added to the force to fill serious gaps in protection but does not fill a fighting vehicle roll. Limited off-road mobility.



**2018**

## **Infantry Fighting Vehicle**

The first fighting vehicle designed for the Improvised Explosive Device environment with modular and adaptable design to support future adaptive threats. Like the original Abrams design, growth potential is built in for effective longevity.

# CURRENT COMBAT VEHICLES



Today the Army employs a combination of vehicles - including Bradley, Stryker, M113 and various MRAP and HMMWV variants - to provide the versatility required for myriad missions.

This approach not only creates challenges to deployment, sustainment and footprint management in an austere theater, it also adds risk to Soldiers and units operating in vehicles that lack the versatility to adapt to the dynamic full spectrum environment. Ten years of conflict show that a vehicle is needed to fill the capability gaps in protection, mobility, lethality and growth potential to achieve the Army's conceptual framework for conducting operations across the full spectrum of conflict in the future.