



Ground Combat Requires an Adaptable, Versatile Vehicle

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The Army's conceptual framework provides the basis for developing and integrating capabilities to meet national security challenges in the 21st century. It addresses force modernization demands, including vehicles for ground combat that provide required versatility and adaptability to conduct full spectrum operations, across the range of operations, in varied terrain and threat environments, including operations amongst the population. Vehicles that deploy the Infantry squad as a whole element will deliver the lowest tactical unit capable of conducting fire and maneuver as part of decentralized operations that are essential to future operations.

Strategic Context for Ground Combat



For the last nine years our Nation has been at war in an era of “persistent conflict.” The dynamic operational environment, explosion of technological advancements, and proliferation of capabilities that were once the exclusive province of the most powerful sovereign nations have dramatically changed the character and conduct of 21st century warfare. Our national security, and the collective security of our allies, will be threatened by myriad complex and unpredictable challenges across the spectrum of conflict. These diverse challenges will emanate from traditional nation-states, non-state actors, extremist groups, and criminal organizations, as well as natural disasters, environmental crisis, and population and resource dilemmas. The most likely 21st century adversary for land forces will be hybrid threats that combine conventional, irregular, terrorist and criminal capabilities and tactics, although possibility remains for general war against a

conventional military threat. Choosing to fight among the people, hybrid threats will asymmetrically attack across the spectrum of conflict and all warfighting domains to undermine governance and regional stability—with resulting global implications.

Our National Security Strategy and its supporting National Defense Strategy both recognize the unpredictable nature and complex character of the current operational environment -- and the implications for global, regional and homeland security. The requirements to prevail in today's wars, prevent and deter conflict, and prepare to defeat adversaries and succeed across a wide range of contingencies demand that our military, and specifically the Army, have the requisite capability and capacity to conduct full spectrum operations across the continuum of conflict. These strategic requirements create a challenge in determining the specific capability and capacity the Army needs, balanced against the capability and capacity our Nation can afford.

Conceptual Framework for the Ground Combat Vehicle

In the context of the operational environment and strategic requirements, the Army's conceptual framework describes the broad capabilities required for the Army to be successful on tomorrow's battlefields. These concepts describe how Army forces conduct operations as part of the joint force to deter conflict, prevail in war, and succeed in a wide range of contingencies. These concepts also shape force structure and force design across warfighting functions and DOTMLPF.

The Army Capstone Concept (ACC) describes the conduct of full spectrum operations in an environment of uncertainty, complexity and ambiguity. To provide joint force commanders with Soldiers, leaders and forces designed for, educated and skilled in operational adaptability, the Army must understand the situation, act decisively, assess and adapt tactical and operational actions, and consolidate and transition between tasks, operations, and responsibility. The envisioned future force is an Army that achieves operational adaptability by thinking in terms of friendly forces, the enemy, and the people -- and possessing the flexibility to secure populations, while simultaneously attacking to defeat enemy organizations and conducting operations to gain physical control and psychological influence over people, land, and resources.

The Army Operating Concept (AOC) describes how Army forces organize for and conduct operations to prevent and deter conflict, prevail in war, and succeed in a wide range of challenges and operational contingencies. The AOC describes combined arms maneuver and security operations as major mission sets for the conduct of full spectrum operations. Combined arms maneuver is the application of all elements of combat power (across joint, interagency, intergovernmental and multinational (JIIM) capabilities and assets) in a complementary and reinforcing manner. Combined arms maneuver achieves physical, temporal, or psychological advantages to preserve freedom of action, and exploit success. Security operations consolidate gains, stabilize environments, and protect the force, populations, infrastructure, and institutions.

Current Combat Vehicles

The complex and uncertain operational environment addressed by the Army's conceptual framework dictates a ground combat vehicle that provides the essential qualities of versatility and adaptability to effectively operate in current and future contingencies across the spectrum of conflict. Today the Army employs a combination of combat vehicles – including Bradley, Stryker, various MRAP variants, M113, and various HMMMV configurations – to provide the versatility required for myriad missions. Currently, no single vehicle provides the combined protection of the MRAP, mobility of the Bradley, and operational flexibility of the Stryker; nor does a single vehicle address the capability gaps of MRAP mobility, Bradley internal capacity, and Stryker protection.

Today's approach not only creates challenges with respect to deployment, sustainment, and footprint in an austere theater, but also adds risk to Soldiers and units that undertake operations in vehicles that lack the versatility to adapt to a dynamic full spectrum environment. In the current and future operational environments, a stability operation can rapidly transition into intense combat operations, and just as quickly revert to a humanitarian effort. Soldiers and commanders are expected to have the mental agility to adjust to these dynamic conditions, and they need a vehicle that is equally versatile and adaptable.

A similar disconnect between concept and capability occurred in the early 1970s as the Army transitioned its operating concept and doctrine from the Active Defense to Airland Battle. The M113, the mainstay of the active defense, provided an infantry carrier with limited lethality, protection, speed and mobility. The new concept called for a fighting vehicle with the lethality, protection, and mobility to deliver Soldiers to the decisive point in the battle and fight alongside them. This change in concept drove the development and fielding of the Bradley Fighting Vehicle.

Like the M113 in the early 1970s, the Bradley Fighting Vehicle now provides a capability that is no longer aligned with the Army's operating concept. Today's Bradley was designed to address a specific threat and a predictable operational environment. It provided protection against what was the primary threat, direct fire, and accepted risk with respect to bottom and top protection where the threat was negligible. Designed to support a specific set of direct fire weapons systems, the Bradley was not envisioned to support and generate the power required by today's suite of lethal and non-lethal systems. The Bradley provides the mobility and speed to keep pace with the M1 Abrams tank in mixed terrain, but sacrifices internal capacity to the point that one infantry squad will not fit within a single vehicle. Envisioned to fight in a mature theater of operations, the deployment, sustainment and power generation aspects of the Bradley design did not consider the limitations of an austere theater and the power generation requirements the Army faces today. Optimized to operate within a battalion and brigade task force, the Bradley was not designed for decentralized operations and interoperability in a JIIM environment.

After almost 40 years since conception, the Bradley is still a premier infantry fighting vehicle for force-on-force major combat operations in open and mixed terrain against a similarly equipped adversary. As the operational environment and our warfighting concepts have evolved over four decades, the Bradley has undergone several modifications. However, the Bradley now lacks the versatility and further adaptability to meet the dynamic nature of the current fight and future uncertainty across the spectrum of conflict due to limited electrical and computational power as well as limited internal capacity.

Stryker and MRAP vehicles were added to the force to address today's dynamic operational environment and fill specific force protection gaps. The Stryker provides a flexible transport vehicle, but lacks the protection and versatility for high intensity combat with limited protection, mobility, and lethality. Stryker's limited growth potential was acceptable for an interim vehicle, but poses significant risk for future operations.

While MRAPs provide excellent protection for road movement and convoys, these vehicles lack off-road mobility -- and they are not fighting vehicles. The variety of terrain and infrastructure encountered by U.S. land forces highlights the limits of MRAPs as a ground combat vehicle.

Just as the Army retained the M113 in combination with the Bradley, the Army's resource-informed combat vehicle strategy provides a mix of combat vehicles with complementary capabilities for the future. Despite the previously noted limitations of the Army's current combat vehicles, they provide valuable capability and capacity as an essential part of the Army's comprehensive strategy to reset, recapitalize and upgrade selected vehicles (Bradley, Stryker, MRAP, HMMMV) and divest vehicles (such as the M113) that are at the end of their effectiveness. The fifth element of the strategy is to modernize to provide a more versatile and adaptable combat vehicle, designed to better meet the challenges of today's and tomorrow's complex and uncertain operational environments. A new combat vehicle capability is needed to address the lessons from nine years of combat and achieve the Army's conceptual framework for conducting full spectrum operations across the spectrum of conflict.

Why a New Ground Combat Vehicle

The mission of the Infantry is to close with and destroy the enemy by fire, maneuver and close combat. The Infantry squad, as the foundation of our Brigade Combat Teams, requires a combat vehicle that enables squad deployment with unit integrity, providing coherent combat power on the ground immediately. Squads need to close on the enemy under the protection of armor and dismount as integral squads. A combat vehicle with capacity to carry the entire Infantry squad maintains unit integrity. Squad integrity enables squad awareness and planning while moving mounted, and facilitates synchronization at the point of dismounted to commence operations.

Having a Ground Combat Vehicle capable of providing a fighting vehicle for an entire Infantry Squad supports the decentralized operations evidenced today and fundamental

to the Army's Operating Concept. At the collective platoon and company levels the capability of a new Ground Combat Vehicle enables effective deployment of combat power to conduct combined arms maneuver and security operations over wide areas and all types of terrain including urban among the population. Platoons are dispersed across the company area of operations, deploying squads as integral units and deploying their entire combat power, both lethal and non-lethal, with organic vehicles. The freedom of movement provided by the Ground Combat Vehicle at the squad level enhances the commander's ability to seize and retain the initiative and shape operations at the lowest tactical level. This is an essential requirement for decentralized operations embodied in mission command - exercising initiative to accomplish missions within commander's intent.

The Ground Combat Vehicle provides force protection that enables close operations among the people. Its armored protected mobility is critical to moving Soldiers to positions of advantage on a distributed battlefield. The capability of the Ground Combat Vehicle to transport and deploy cohesive squads and small units is critical to successful execution of future operational concepts.

Lessons learned from nine years of combat have consistently emphasized protection, mobility, and versatility as the key attributes that Soldiers and their leaders require in a combat vehicle. To meet the challenges of the operational environment, and provide the capability required for combined arms maneuver and area security across wide areas, the Army needs a single Ground Combat Vehicle that incorporates protection against improvised explosive devices, tactical mobility, and operational agility – along with growth potential to address new threats and incorporate new technology.



Adaptive Acquisition Approach

Just as the Army's concepts and capabilities must adapt to the operational environment, the process for developing, acquiring and fielding those capabilities must also adapt. The Bradley, Abrams and other "Big 5" systems of the 1970s and 1980s used an extended, linear, 20-25 year plan for development, testing and evaluation, and fielding to deliver needed capabilities to execute the Army's Airland Battle concept. Although this sequential, deliberate approach significantly prolonged capability delivery across the Army, the stability and predictability of the operational environment and threat ensured a low risk of the capabilities becoming irrelevant or outdated before fielding was complete.

This is not the case today, due to the dynamic nature of the operational environment and rapid pace of technological change. By rapidly assimilating new technologies and adapting older technologies, adaptive adversaries have rendered the traditional acquisition process as outdated as the concept of Active Defense. A linear approach

and extended multi-year timelines ensure that a capability is outdated before it completes testing and obsolete before it is fielded.

The Ground Combat Vehicle will be a model for acquisition reform, providing an adaptive, incremental approach to development and fielding. Delivering the first Ground Combat Vehicle infantry fighting vehicle in 2017 represents acceleration over the linear, extended approach of major combat vehicle programs of the past. However, the real key to providing adaptation is linking the incremental Ground Combat Vehicle delivery to ARFORGEN ready units. Having established growth potential as an operational requirement, the Ground Combat Vehicle will arrive with the expectation of and ability to incorporate modifications. This potential ensures that deploying units receive the best capability we can provide. This approach provides for continuous incorporation of current technology to ensure battlefield reliability and advantage. Instead of delivering an out of date vehicle, or sending a program back to development in the middle of fielding, the incremental approach allows the Army to incorporate the latest armor, integrate a new power generation plant, or enhance network connectivity -- and get these enhancements to the Soldier now instead of years from now. An incremental approach embraces innovation where the opportunities of technology encounter the demands of the operational environment.

Achieving realistic cost/benefit analyses, and balancing capabilities, against time and resources, is the key to the Army's affordable modernization strategy. Speed matters in terms of delivering capabilities that are fully integrated across DOTMLPF and ready for delivery to Soldiers for the current fight. Embracing the Army's Force Generation Model, this approach delivers the latest technology, in an incremental manner, to the units that are deploying or ready to deploy. Ensuring a continuous process to adapt and innovate based on the operational environment and evolving concepts, means buying fewer capabilities more often, to achieve affordability and adaptability.

The Ground Combat Vehicle incremental development approach enables initial fielding by 2017, while establishing a basis from which to adapt. The Ground Combat Vehicle's modular design will allow for growth in size, weight, power and cooling, which enables rapid integration of improved capabilities in subsequent increments. Modular design, particularly for armor and armaments, will provide commanders with configuration and employment options, complementing the Army's versatile mix of forces.

Summary

The Ground Combat Vehicle will enable the Army to meet the challenges of the operational environment by providing Soldiers the capability they need to fight and win today's war and adapt to meet future uncertainty. The new Ground Combat Vehicle unites lessons learned from close combat with emerging operational concepts involving combined arms maneuver and wide area security operations across the spectrum of conflict, in complex and varied threat environments among populations. The Ground

Combat Vehicle will be equipped with greater lethal and non-lethal capabilities, while providing Soldiers with networked situational awareness. The vehicle will deliver the Infantry squad as a whole unit while providing protection, mobility, and adaptability. The ability to transport and deploy cohesive squads will enable combined arms maneuver and area security operations in a decentralized manner. Modular and adaptable, the Ground Combat Vehicle provides operational versatility, and enhanced sustainment and endurance for an expeditionary force in austere theaters of operation. Delivered through an incremental approach to development and fielding, the Ground Combat Vehicle provides an adaptable and affordable capability that is required by the Army's conceptual framework to meet our nation's strategic requirements in an era of persistent conflict.