

# Mobile Protected Firepower: An Opportunity

by LTC Ben Ferguson and CPT Lennard Salcedo

Defense news sources reported in 2016 that the Army was interested in developing a lightweight ground-combat vehicle to accompany infantry brigade combat teams (IBCTs) and keep them relevant in large-scale combat operations (LSCOs) against a near-peer threat.<sup>1</sup> Originally referred to as a light tank, Army officials named the new concept mobile protected firepower (MPF); this approach was intended to dissuade servicemembers from viewing it as a tank-like vehicle and then employing it the same way as the M1 Abrams main battle tank (MBT).

The development of MPF presents an opportunity to bridge a capability gap that was created when the M551 Sheridan Armored Reconnaissance/Airborne Assault Vehicle retired from service. The M551 had earned admiration for its effective operational capabilities – and disdain for its technical shortcomings. As MPF meets testing milestones and prepares to integrate into IBCTs, commanders at the brigade level and below must ensure the know-how to employ the platform correctly or they will face a steep learning curve against adversaries at the cost of Soldiers' lives.<sup>2</sup> MPF's tactical and strategic potential can better enable the IBCT to execute its mission set while augmenting its ability to defeat a larger spectrum of enemy capabilities.

## Why do we need MPF?

MPF's purpose is to defeat targets that could compromise the IBCT's effectiveness. This capability is necessary to defeat enemy prepared positions, to destroy enemy armor vehicles, to close with and destroy enemy forces and to ensure freedom of maneuver and action for the infantry. The plan is for MPFs, by means of organic protection and firepower, to augment the IBCT's ability to conduct combined-arms maneuver with growing technologies. MPF, with scalable armor packages, provides the IBCT a flexible and tailorable response in contested and various locations to mitigate the enemy's ability to exploit previous capability gaps within the IBCT.

With the addition of a light armored force, IBCTs will see improvement in three planning factors. First, their ability to provide strategic reliability when facing motorized or mechanized near-peer threats will be enhanced. Second, they will be better able to respond to increased threats with dedicated firepower. Finally, the lethality of IBCTs will be improved through their gaining an organic combined-arms maneuver capability comparable to a Stryker brigade combat team (SBCT) and an armored brigade combat team (ABCT).

MPF provides a unique capability to enable the IBCT to fight as a strategic combined-arms team.<sup>3</sup> IBCTs use uparmored humvees for mobility and protection, typically armed with a .50-caliber machinegun, Mark 19 Automatic Grenade Launcher or tube-launched, optically tracked, wire-guided (TOW) missile. While this system has proven invaluable during multiple decades of service, it will be increasingly incapable of effectively filling the same role in the next major conflict. Even with Common Remotely Operated Weapon Stations (CROWS) and the Improved Target Acquisition System (ITAS), the humvee is outclassed by near-peer formations that use air-droppable fighting vehicles with improved fire-control systems for fire-on-the-move. These near-peer fighting vehicles are armored, maneuverable and casualty-producing; they can mitigate the IBCT's strategic maneuver significantly.

Armor company-teams were a frequent request from 18<sup>th</sup> Airborne Corps prior to 2018; this consisted of a company-team of mechanized infantry and tanks accompanying an IBCT for a Joint Readiness Training Center (JRTC) rotation. These individual ready companies (IRCs) were even aligned for deployments after the Sheridan's retirement left 82<sup>nd</sup> Airborne with no armored force to accompany it on contingency missions.

Combatant-command commanders are still able to create these teams from forward brigades – such as the deployment of Bradley Fighting Vehicles to Syria to support allied operations or the deployment of Task Force 1-63 Armor during Operation Iraqi Freedom.<sup>4</sup> This task force deployed to northern Iraq with 173<sup>rd</sup> Airborne Brigade in 2003 to conduct reconnaissance-in-force and to demonstrate Coalition resolve. Given that 173<sup>rd</sup> and the unit (then stationed in Germany) had trained together, commanders and planners were able to synchronize and work effectively to deter enemy forces from seizing Kirkuk oil fields.

These instances demonstrate the ability to integrate these formations, but they were not nearly as efficient as an organic armored asset aligned with that IBCT could have been. The IRC concept and effectiveness do compare with

that of a company of MPFs that is co-located within the same division and can frequently train with the unit to ensure successful integration.

## **Limitations of current weapon systems**

MPF will keep the IBCT strategically relevant in LSCOs by providing the capability to defeat these threats and to ensure freedom of action and maneuver. An infantry platoon can employ organic anti-tank weapon systems or rely on the battalion weapons company TOW missile trucks to counter these threats at a significant trade-off.<sup>5</sup>

First, these systems lack a maneuverable fire-control system. The ITAS and TOW missile, the Command Launch Unit, Javelin and the AT-4 are all capable weapon systems that require a dedicated team to operate; they become increasingly difficult to employ when under direct or indirect fires:

- TOW missiles require the gunner to track the missile onto its target undisturbed for whole seconds that could instead be better spent displacing to the next firing point.
- Javelins require an appropriate firing position for a top-down attack.
- AT-4s have no guiding system.

Second, these weapon systems have minimal protection. Their portability enables the infantry to maneuver through restrictive terrain and set ambushes for enemy forces; these benefits quickly become burdens if enemy forces can identify and disrupt maneuvering infantry.

While these weapon systems are integral to the infantry platoon, they are no replacement for the protection MPF will offer in engaging armored targets or enemy strongpoint defenses. MPF fills the capability gap by providing a survivable platform capable of delivering vehicle- and bunker-destroying rounds. At 105mm with a variety of round types, the fully stabilized main gun is more than capable of neutralizing bunkers and defeating light enemy armored forces that an IBCT might encounter in theater.

Also, MPF preserves the infantry's organic anti-tank assets by directly filling that role. This enables commanders to better reserve their assets for the appropriate situation and so to maneuver their units more effectively.

MPF enables commanders to appropriately scale their responses to armed conflicts. Within the current brigade combat team (BCT) configurations, the only MPF-like alternatives are the M1 Abrams MBT or the M1128 Mobile Gun System (MGS). The MGS, while suitable in its initial employment in the Global War on Terrorism (GWOT), has lost its utility within the SBCT.<sup>6</sup>

The Dragoon variant of the Stryker, with its 30mm gun and the CROWS-Javelin upgrade, will enable future SBCTs to have more fighting-vehicle-like capabilities and the limited capacity to destroy enemy vehicles when stationary. This upgrade makes the SBCT more formidable, but it still lacks the firepower and fire-control system MPF can bring to the fight. The M1134 Anti-Tank Guided Missile Stryker, along with the dual role of antitank and anti-air capabilities of the Mobile Short-Range Air-Defense Stryker, partially mitigate the capability gap left by the Army's decision to divest the MGS in April 2021.<sup>7</sup>

The other MPF-like alternative is the M1 Abrams MBT. The venerable M1 is a proven platform capable of destroying all types of targets. However, its increasing weight and logistic requirements make strategic deployments more resource-intensive. Until the Army can field the Next-Generation Combat Vehicle and mitigate some of these issues with current design and technology, it will have to expend considerable resources in moving tanks and armor assets from forward-deployed ABCTs to react to conflicts in different areas of interest and areas of operation (AoRs).

## **Contrasting improvements offered by MPF**

Given these considerations, the Army has limited capability for projecting armored combat power to potential theaters of combat. Even if strategic lift assets support the rapid deployment of tanks, the Pacific theater's dense jungles and various islands or the lack of heavy bridges in Africa could impede the M1's effectiveness. MPF's lighter weight allows it to be more transportable and more maneuverable in such environments. Thus commanders and planners can scale their responses in their respective combatant commands to respond to various types of conflicts more effectively. In multi-domain operations (MDO), MPF is an essential enabler in ensuring that IBCT units retain their freedom of maneuver and can contribute to the joint forcible entry maneuver into contact.

MPF will enable IBCT subordinate units to conduct effective combined-arms maneuver. IBCTs, as compared to SBCTs and ABCTs, currently have limited ability to conduct combined-arms maneuver against an LSCO threat. The latter formations have dedicated firepower with fire-control systems that enable them to maneuver and fight on the move. Based on JRTC rotations that previously used armor enablers from other units, IBCTs typically continued to maneuver without IRC tanks until they met the criteria to pull assets forward.<sup>8</sup>

Reportedly, battalions were already at 70 percent combat power after initial engagement with the opposing force (OPFOR)'s indirect and direct fires from the OPFOR's infantry and fighting vehicles.<sup>9</sup> The accompanying tank force often found itself unable to occupy templated support-by-fire positions due to its delayed movement, friendly infantry's displacement in the enemy's engagement area and difficulty maneuvering in restrictive terrain.

One of MPF's major benefits is the ability to maneuver across restrictive terrain with the IBCT. At lower weights, the vehicle is capable of maneuvering with and directly supporting infantry so that commanders will immediately have necessary capabilities. Their improved maneuverability will present the enemy with a complex tactical dilemma. While the vehicles could still become mired, MPF's ability to enable friendly forces to defeat armor and strongpoint defenses are worth the risk. Humvees have often filled this role, but they are incapable of effectively firing on the move and have significantly less survivability, making them less viable in combined-arms maneuver than MPF. Consequently, maneuver battalions will improve their lethality and ability to win enemy engagements.

### **Recent historic use of light armor in infantry formations**

First fielded during the Vietnam War, M551 Sheridan tanks replaced the M113A1 Armored Cavalry Assault Vehicle (ACAV) (an M113 with three machineguns that had turret shields) and M48 Patton tanks in Cavalry squadrons. With its lower weight and 152mm rounds, the Sheridan was expected to perform better as an armored-Cavalry team.<sup>10</sup>

The M551's performance unfortunately failed to inspire total confidence. While maneuvering was easier, crews dealt with design flaws that caused casualties.<sup>11</sup> For example, the aluminum armor made it just as vulnerable to mines as the M113A1 had been and more vulnerable than M48s. Uncased rounds corroborated this, as vehicles hit by mines and sometimes even significant antitank fire could cause propellant to spill inside the vehicle, prompting crews to bail out before the enemy could knock the vehicle out. The electronics inside caused problems in-theater as crews found systems not to be mission-capable when they were in environments with high moisture – again, this was in Vietnam. The doctrine did not match the employment; the vehicle was arguably not as well-suited for assaulting into ambushes as the Cavalry team of ACAVs and Patton tanks.<sup>12</sup>

Following Vietnam, the Sheridan still proved the utility for light armor during Operation Just Cause. The Army retired M551s into OPFOR units while maintaining a battalion (4<sup>th</sup> Battalion, 68<sup>th</sup> Armor, later 3<sup>rd</sup> Battalion, 73<sup>rd</sup> Armor Regiment) in 82<sup>nd</sup> Airborne Division. Paratroopers, together with M551s, deployed to Panama; they operated as a combined-arms team against a surprised enemy force.<sup>13</sup> Following a heavy drop that resulted in one inoperable Sheridan, the platform effortlessly destroyed barriers to enable the infantry to maneuver.

Snipers, machinegun teams and enemy ambushes failed to decisively engage paratroopers, as the Sheridan would quickly dispose of them with its improved fire-control systems and 152mm high-explosive, anti-tank (HEAT) or canister rounds. The strategic deployment of a combined-arms teams of fires, infantry and armored assets enabled a swift end to Operation Just Cause.

The 3-73 Armor demonstrated the utility for MPF capabilities in operations Desert Shield and Desert Storm. Following a massive intra-theater air insertion of the entire battalion with 82<sup>nd</sup> Airborne Division, M551s easily destroyed strongpoint defenses and secured ports for 24<sup>th</sup> Infantry Division and the U.S. Marines. These M551s had the tank thermal-sight upgrade and were able to fight accurately at night, alleviating enemy pressure on the infantry. Machinegun nests limited friendly maneuver only briefly as 152mm rounds, followed by heavy machinegun fire, destroyed multiple positions. These defenses would have otherwise reduced combat power and logistical support for friendly forces if not for MPF-like capabilities.

While the Army knew it needed to replace the Sheridan to keep pace with advancing capability demands, it was nonetheless intent on maintaining the positive capabilities the Sheridan had provided; it would make significant strides in this effort in the 1980s until the Gulf War. It started with the XM8 Armored Gun System (AGS).<sup>14</sup> The

air-droppable AGS could deliver capabilities like those of the M551, but it could do so more reliably, as it was equipped with the proven 105mm cannon. However, the budget could not support its production in 1996, and the program was cancelled.

During GWOT, the Army tested the MGS viability as a replacement for MPF-like capabilities in IBCTs, which ultimately never resulted in the MGS integrating into IBCTs. The Army accepted risk by not replacing the M551 earlier, as GWOT remained the strategic priority for the upcoming years. The once-acceptable capability gap became one of the focus points of the Army's modernization efforts as the Army prioritized MDOs and LSCOs.

## **MPF's utility**

Skeptics of MPF may wonder if IBCTs truly need MPF in their formations. While historic trends show that appropriate doctrine and employment of armor are paramount to success, senior leaders continually emphasize how MPF is not a light tank; consequently, commanders do not immediately employ MPFs in front-line battles with other enemy armored forces.<sup>15</sup> MPF will operate optimally when its use is aligned with the Army Armor Branch mission statement, closing in and destroying enemy by fire, maneuver and shock effect.<sup>16</sup>

MPF's mobility can enable light infantry to maneuver more effectively. This platform is more conducive than previous generations to combined-arms maneuver, and it can allow for the relief of infantry caught in decisive engagements in restrictive terrain. The horsepower-to-weight ratio allows the vehicle to negotiate various restrictive terrains that would otherwise mire an MGS or an M1 Abrams.<sup>17</sup>

The M1A2C Abrams is also approaching higher weights that limit both its mobility on Air Force transports and its ability to maneuver through infrastructures such as European bridges or the current M60 Armored Vehicle Launched Bridge. MPF's mobility would allow it to displace rapidly to support other maneuver battalions as well as react to threats to lines of support better than humvees or Mine-Resistant Ambush-Protected All-Terrain Vehicles (M-ATVs). MPF is likely more maneuverable than humvees and M-ATVs as a tracked vehicle, and it is definitely more lethal with its ability to fire on the move; the other vehicles in the IBCT are not designed with such sophisticated fire-control systems.

While they could probably engage on the move, their effectiveness is limited at best. Situations where tanks cannot maneuver to support infantry assaults will likely become less frequent as MPF crews and leaders learn their vehicles' limits and are able to provide commanders with realistic capabilities so planners can better determine where MPF needs to be to make operations successful.

Skeptics may state that the logistic requirements for MPF could encumber the IBCT's mobility. In these instances, MPF maintenance and resupply would become a frequent task for MPF leadership and operational-control units to manage. But the requirement for more logistic support and planning should not be a factor in why this platform should not be integrated into IBCTs. Leaders from ABCTs and SBCTs will be able to use their experience to help the IBCT better plan for integration along with the appropriate doctrine, standing operating procedures (SOPs) and mission-specific considerations.

Like the K-series modified table of equipment, the consolidation and central management of MPFs is paramount to success. Like the weapons company in an IBCT or a weapons troop within an SBCT, central management will enable MPF crews to learn best practices in tactics, logistics and leadership prior to their attachment to an IBCT. MPF companies will then be able to deploy with some of their organic logistic support, knowing what they need to request and at what frequency to enable the unit to properly support their operations. This will become drastically more important as IBCTs begin converting light BCTs that maneuver motorized-infantry battalions, which need firepower to keep pace with their units. Thus, the MPF's logistic footprint should not be treated as a limiting factor but a planning factor for leaders to consider and develop both the proper SOPs and tactics, techniques and procedures (TTPs) to ensure success.

MPF brings necessary firepower to the IBCT's fight. The 105mm cannon, the coaxial 7.62mm machinegun and the externally mounted .50-caliber machinegun are the primary armaments for MPF. The IBCT can only benefit from precision firepower that the fire-control system can bring to the fight. The main gun will likely use legacy rounds the MGS used:

- HEAT rounds for fighting vehicles;

- Sabot rounds for tanks;
- High-explosive plastic for obstacles; and
- Canister for massed infantry.

This sort of firepower can provide commanders with the ability to respond to various threats that would have taken a dismounted antitank team or a TOW humvee into the fight. MPF has a unique ability to better react to contact than the other teams. Antitank teams and humvees function well in the ambush, but they are drastically less likely to destroy the enemy when responding to an aggressive armored threat. Under pressure, it can be difficult for these teams to properly acquire a target. The Carl Gustav rockets or AT4s may not guarantee an immediate kill, meaning the vehicle could potentially engage friendly forces and reduce combat power. Javelins and TOWs have a higher probability of kill, but they still require the gunners or crew to remain vulnerable to direct and indirect fires. MPF can fight better on the move, allowing these teams to function under significantly less duress to destroy armored threats.

MPF will bring better protection than other vehicles in the IBCT, but it is important to note that it cannot bring the same level of protection a tank might field. Given that MPF will use scalable armor packages to augment its survivability, commanders must understand MPF has been deliberately named to not give the impression of a main battle tank. These packages, like the urban upgrades the Abrams received during GWOT (Tank Urban Survival Kits), will further enable the vehicle to fight alongside IBCT units in cities.<sup>18</sup>

Contrary to some opinions, tanks and armored vehicles have fought and will continue to fight in cities. Their commitment to the fight must be well regulated, but MPF-like platforms have enabled more effective and efficient fighting within cities. Rather than avoid this reality, our Army should embrace the concept and continue to refine armor employment within cities and megacities.

MPF will likely not be able to push through rocket-propelled grenade volleys or survive tank rounds. Instead, it will be capable of offering enough protection to survive enemy fighting vehicles to augment dismounted troops' survivability. The addition of active protection systems such as the Trophy System will serve to improve its survivability against antitank guided missiles and even against rocket-propelled grenades; together these can enable MPF, along with dismounted infantry, to continue the fight both in open and mounted AoRs. While the crew is (relatively) safe from small-arms fire and higher caliber rounds, MPF will have the capability to engage with the combined-arms team, enabling them to better mass effects in the right times and spaces to defeat enemy attacks and defenses. MPF can regulate what was once a haphazard fight with the enemy forces, supporting dismounted commanders by providing more options to react to contact and defeat enemy forces.

Shock effect is the element that will truly make MPF invaluable to commanders at any echelon. The ability to deliver precision direct fires from terrain previously thought of as too restrictive for armor to maneuver through will continually shrink as MPF integrates and receives upgrades. Enemy strongpoint defenses that would have otherwise pinned infantry units down will continue to dwindle; this is exactly the way history's first tanks broke stalemates in World War I.

Next-generation enemy vehicles and upgraded older platforms will become less destructive threats to the infantry as MPF – and supported infantry or mounted antitank teams – will be able to effectively engage and destroy these targets. The multiple tactical dilemmas given by these “spontaneous” combined-arms teams will force them to make hard decisions that will allow IBCTs to remain strategically viable against more enemy formations. As the Army codifies the primary method for deploying MPF to theater, its insertion along with IBCTs will become easier to plan and will begin to integrate shock effect to break the enemy's tempo and conduct successful operations.

## **Conclusion**

Since the end of World War II, the Army has continuously tried to maintain MPF-like capabilities. Even as these initiatives dwindled during GWOT, the need for this capability continues to resonate with IBCT leaders today; it is something they know will augment their operations and generate options for them to react to contact. MPF is a capability that must be maintained for IBCTs to remain formidable as the Army transitions to MDO and LSCO.

After the delay during GWOT, it seems the Army is working toward closing the capability gap. It is worth thinking about future MPF augmentations considering what was discussed above regarding MPF's utility. What will the Army do to maintain and upgrade overmatch in fire, mobility, protection and shock effect?

One likely upgrade depends on the ability to integrate more unmanned ground vehicles, unmanned aerial vehicles and artificial intelligence (AI) networks into the force.<sup>19</sup> Robots that could automatically seek refueling stations, conduct resupply and return to crews is just one of hundreds of opportunities that could secure integration between people and machines. This would undoubtedly put less risk on Soldiers conducting resupply and present less of a target to enemy forces. Unmanned ground vehicles and unmanned aerial vehicles could also be used to mitigate the need for scouts with MPF or combined-arms teams. On-board AI could help generate synopses for radio transmissions during engagements or help crews slew the turret to their next most dangerous targets.

MPF's doctrine development is just as important as its acquisition. It is likely to be used just like an Abrams by virtue of its aesthetic, which could prove detrimental to its integration into the combined-arms team. This is no different from commanders in World War II receiving a tank-destroyer company and proceeding to use it as though they were Sherman tanks. The accompanying doctrine and TTPs must match the mission set and intent for MPF, or its misuse may deter future investment into making the platform better suited for supporting IBCT operations.<sup>20</sup>

The IBCT can undoubtedly continue to fight without an MPF platform to support its maneuvers. However, this comes with unnecessary risks that MPF can mitigate. There is a reason why MPF is one of many iterations (Stuart, Chaffee, Bulldog and Sheridan tanks) in the endeavor to have a light armored platform that can deliver precision fires.<sup>21</sup> The ability to field combined-arms teams is important in maintaining overmatch with near-peer threats and in responding to various threats.

This platform will enable the IBCT to remain tactically formidable and strategically mobile while reducing casualties that would occur if the troops did not have direct fire support to counter strongpoint threats and armored threats. The transition from counterinsurgency to LSCO is the perfect opportunity to invest in a capability that will help accomplish the mission, implement a better combined-arms team into IBCTs and mitigate casualties through fire, maneuver and shock effect in the next armed conflict.

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## Notes

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## Acronym Quick-Scan

**ABCT** – armored brigade combat team

**ACAV** – (M113A1) Armored Cavalry Assault Vehicle

**AGS** – (XM8) Armored Gun System

**AI** – artificial intelligence

**AoR** – area of operations

**BCT** – brigade combat team

**CROWS** – Common Remotely Operated Weapon Station

**GWOT** – Global War on Terrorism

**HEAT** – high-explosive anti-tank

**IBCT** – infantry brigade combat team

**IRC** – individual ready company

**ITAS** – Improved Target Acquisition System

**JRTC** – Joint Readiness Training Center

**LSCO** – large-scale combat operations

**M-ATV** – Mine-Resistant Ambush-Protected All-Terrain Vehicle

**MBT** – main battle tank

**MDO** – multi-domain operations

**MGS** – Mobile Gun System

**MPF** – mobile protected firepower

**OPFOR** – opposing force

**SBCT** – Stryker brigade combat team

**SOP** – standing operating procedure

**TOW** – tube-launched optically tracked wire-guided (missile)

**TTP** – tactics, techniques and procedures